

**Forest Practices Board Comments on
the Government's discussion paper:**

*A Results-Based Forest and
Range Practices Regime for
British Columbia*

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Introduction

In May 2002, the British Columbia government released its discussion paper: *A Results-Based Forest and Range Practices Regime for British Columbia*. The Forest Practices Board welcomes this opportunity to comment on the discussion paper.

The BC legislature created the Forest Practices Board because it recognized the need for an independent agency to reflect the public interest in forestry matters by monitoring forest practices. These comments are based on the Board's seven years of experience auditing and investigating complaints about forest practices and the appropriateness of government enforcement, and participating in administrative reviews and appeals under the current Forest Practices Code.

The Board commends the government for releasing the discussion paper and inviting comment and debate. Regulating forest practices in British Columbia is a difficult balancing act, which must attempt to serve the public interest by balancing the many interests that converge in forests of the province—including such interests as forestry, recreation, fisheries, biodiversity, community economic development, social welfare, drinking water and tourism. A results-based code will have a significant effect on the management and regulation of forest practices and it is therefore appropriate to involve the general public in discussion of proposed new forest practices legislation.

These comments are primarily focused on critical policy issues. In general, we have not commented on details of the proposal except to illustrate a policy concern. The Board supports the concept of focusing on results "on the ground." We want to see the results-based code succeed. However, the Board has a number of general concerns.

The Board is of the view that the discussion paper has not adequately addressed a number of issues and the ideas require further work before a workable results-based code can be introduced. The Board has the following concerns in particular:

- Much work remains to be done to establish clear, measurable results – something that is essential for a workable, results-based code.
- There are some areas where, as a result of the elimination of operational planning requirements, it will be necessary to have a mechanism to prevent unacceptable results before they occur. For example, it may be necessary to deny permits to operate in sensitive areas if the proponent does not have plans and assessments that demonstrate operations can proceed without causing damage to important resource features.
- The proposal to rely on interim objectives until landscape level objectives have been set is a concern, particularly as the proposed interim objectives are not set out in the

discussion paper. Consideration should be given to making interim objectives stringent in order to provide incentives to get on with developing resource zones and objectives (e.g. doublewide reserve zones, high biodiversity emphasis, etc.)

- There is not enough public involvement under the proposed results-based code. Maintenance of public confidence should be an important objective for any forest practices regulation in British Columbia and this means, among other things, involving the public in forest management.

Stewardship and risk

A useful starting point for consideration of forest practices regulation is the government's important stewardship role in relation to forest and range resources. The general importance of regulations to protect the environment is widely recognized. The Supreme Court of Canada has stated that "...stewardship of the environment is a fundamental value of our society..." and that environmental protection laws deal with "a public purpose of superordinate importance" (*R. v. Hydro-Quebec*).

Beyond the general need to protect the environment, the Code has another purpose—to ensure the sound management of the public's property. Most of the province's forest and rangelands are publicly owned. Thus, unlike many environmental regulations, forest practices regulations affect private sector conduct on publicly-owned lands. As a consequence, the province is acting not just as a government regulator, but also as a property owner seeking to ensure the long-term value of its assets.

As government moves to make the Code more efficient and to reduce red tape, it is vital that a new code effectively protect both the public's land and the environment, while meeting the economic and social objectives of government. This is acknowledged in the discussion paper. A key question, therefore, is what level of risk to resources is acceptable?

Any legislation that regulates forest practices will involve some level of risk to the public—risk to the environment, public resources and, in some cases, to private property. These risks have the potential to impact the credibility of BC forest practices and access to markets. Based on our review of the discussion paper, the results-based code is a higher risk model than either the current Code or the system in place before the Code.

The discussion paper states that:

The key principle of a results-based forest and range practices regime is that licensees will manage risks associated with achieving specific results, and that government will hold licensees accountable for achieving those results. (p.5)

However, when things “go wrong” in the woods, the public and international markets will hold government accountable, regardless of how much responsibility and accountability is intended to be placed on industry.

Reasons for the higher risk include lack of operational planning requirements; lack of clear, measurable results; insufficient public involvement and more difficult enforcement.

Operational planning

One of the main differences between the current Code and the results-based code is that the current Code relies on planning, while the results-based code has very few planning requirements.

Under the current Code, forest companies must prepare operational plans and other documents before they start logging or building roads. These include forest development plans, silviculture prescriptions and road layout and design. The government Small Business Forest Enterprise Program has similar obligations. In many cases, forest companies must also conduct assessments to identify and prevent negative impacts. Assessments may evaluate terrain stability, determine whether or not a stream is fish bearing, assess the incremental impact of logging on a watershed and other matters.

Government officials—district managers—must approve operational plans before operations can begin.

The results-based code will dispense with most of these operational planning requirements. Forest companies will not have to prepare forest development plans, silviculture prescriptions or road layout and design. Similarly, under the results-based code forest companies will not be required to conduct assessments. The only required document will be a resource development permit, which will require district manager approval. Resource development permits will create options to harvest timber or build roads in development units. Some amount of planning is implicit in the requirement for approval of resource development permits, but it appears to be minimal.

What are the implications of this change to the legislation?

Operational planning and plan approval, with the need for a supporting bureaucracy, costs money. It is in the public interest to avoid excessive cost of environmental regulations. To the extent that the results-based code reduces unnecessary paperwork, the change is positive.

However, it is important to distinguish red tape—which imposes unnecessary transaction costs—from substantive requirements that provide necessary protection to the environment and public resources, but may also impose costs. Inadequate regulation can have an

economic cost. For example, unregulated soil disturbance can have economic impacts on future forest productivity. In 1988, a joint federal-provincial study estimated that soil disturbance caused by forest practices could cost the provincial economy \$80 million annually.ⁱⁱ

In addition, short-term cost savings can be offset by greater costs that may be incurred later in the form of remediation and litigation.

Preventing unacceptable results

One of the benefits to the public of legislated operational planning requirements is avoiding unacceptable or undesirable results. Operational planning that is required by legislation enables potential problems to be identified and unacceptable results to be prevented before damage occurs. District managers apply quality control, needing to be satisfied that the plans, if approved, will not have an unreasonable adverse affect on a broad range of forest resources. Much potential damage to forest resources can be mitigated or prevented by denying unsuitable plans.

The lack of operational planning requirements in the results-based code will make it more difficult to prevent unacceptable results. Punishing licensees after the fact for an unacceptable result will not undo what has happened. Unacceptable results include landslides, extirpation of a species, failure to regenerate trees and damage to streams with significant fisheries or water quality values.

For example, the Board's audit of TFL 41 (Jan. 2000), found that misclassification of an S3 (fish-bearing) stream as an S6 (non-fish-bearing) stream resulted in the lack of retention of riparian reserve zone, yarding and decking on top of the stream, construction of a road crossing with no consideration of timing windows intended to protect fish, and blocked fish passage cause by improper placement of a round metal culvert. In the absence of operational planning requirements, it is likely that this sort of result would be more common.

Unacceptable results can have an economic cost, impacting forest productivity, other industries such as fishing, tourism and trapping, and increasing cost of water supplies. In cases where remediation is possible, it may be very expensive.

In discussing the benefits and disadvantages of operational planning, it is important to distinguish between mandatory operational planning—operational planning required by regulation—and operational planning that licensees choose to do of their own volition. The results-based code does not remove opportunities for licensees to identify potential problems, but it does remove the legal requirement to do so. And it largely removes government oversight, which can identify potential problems before they occur.

Forest companies may choose to carry out assessments and prepare plans, even though they are not required to. It may be argued that the desire to avoid penalties will cause companies

to exercise due diligence, thereby avoiding undesirable results. However, for reasons discussed under the “Enforcement” section of this document, it should not be assumed that this will be the case.

In addition to the unacceptable results noted above, there are other values that warrant a preventative approach, because it will not be possible to adequately compensate a failure to achieve results. Another example is retention of old forests. The values identified in the discussion paper should be assessed to determine whether they warrant prevention, or can be adequately compensated through penalties if the intended results are not achieved.

Clear, measurable results

Another difference between the current Code and the results-based code is that the current Code seldom explicitly states expected results, while the results-based code is intended to do just that. A clear statement of expected results is the essence of a results-based regulation. While there are benefits to this approach, there are also risks. Reliance only on specified results limits the ability to deal with unforeseen circumstances or results that have been overlooked in the legislation.

For example, the results-based code identifies a number of values for which objectives or goals are set. These include: landscape level biodiversity, coarse woody debris, forest health, silviculture and other values. These appear to be the only values that the results-based code will seek to protect or manage for. Values that are not specifically mentioned will not be considered.

This is different from the current Code, where district managers approve operational plans only if the plans will adequately manage and conserve forest resources. This gives the district manager the ability and the obligation to consider all forest resources in the area under the plan. The definition of “forest resources” is broad under the current Code. It includes resources and values associated with forests and range including timber, water, wildlife, fisheries, recreation, botanical forest products, forage and biological diversity.

Removal of the “adequately manage and conserve” test under the results-based code will mean that this important safety net is no longer available. Thus, the choice of values takes on greater importance. If a value is not specifically addressed in the legislation, it is not likely to be addressed operationally. This creates a riskier model.

Some values that are not addressed, perhaps should be—one example being wildlife that has not been designated as identified wildlife, and another being recreation values.

In a workable results-based code, sound forest practices must be guided by clear and measurable objectives, and everyone involved will need to have a shared understanding of

the intended results. Otherwise, forest companies won't know what is expected of them and the public won't trust the companies or the government.

For example, in 2002 the Board completed an investigation in the Cariboo Forest Region, where there is a higher level plan in place (*Management and Conservation of Mountain Caribou Habitat in the Cariboo Region*, March 2002). An operational plan contained an objective for retention of small, poor-quality trees to provide habitat for caribou in winter. The objective did not specify a minimum level of retention or provide guidance on the amount or characteristics of trees to retain. It allowed for a range of outcomes. As a result of the lack of precision, the harvesting did not achieve the level of retention intended by the government officials, and they contend the area now has little value for caribou. The licensee believes it complied with the plan and that the result is not a failure. The failure to achieve the decision-makers' intended result, and the disagreement about whether the result is in fact a failure, demonstrates the importance of clearly stating expected results. It also demonstrates the importance of field confirmation of attributes, and assessment of results. A results-based code will not work unless the loop is closed, looking at the site-specific results of forest activities and assessing and reporting against objectives and targets.

However, it is evident from the discussion paper that there are not yet clear and measurable objectives in place for some important values. One example is landscape level biodiversity, which is discussed under the following section. Another is wildlife trees, where the result is to be set by regulation. Some of these may yet take a long time to establish.

Some of the results proposed in the discussion paper are not clear and measurable. For other results, measurement will depend on having baseline information that, in many cases, does not currently exist.

Results not clear and measurable

In some cases, the intended results described in the discussion paper are not clear or measurable. One example is the intended result for coarse woody debris, as stated in the discussion paper:

- *Coarse woody debris will be left dispersed on the site after harvest. This retention will include large pieces that can last the full rotation. Coarse woody debris retention will be balanced with other resource management objectives and results.*

That is not a measurable result. It can't be audited and reported to the public. That's because the required amount of coarse woody debris is not specified. Any amount of coarse woody debris would meet this objective, as long as it was dispersed. In addition, the balancing statement does not state what other objectives and results are to be balanced, or by whom.

Another example of a result that is not measurable is one of the results for forest health:

- *The licensee must conduct activities to detect forest health factors in a timely manner.*

This does not specify the area within which the licensee will have responsibility. Is it the entire area of the resource development permit, or something less than that? It focuses on activities without saying what types of activities are acceptable. For example, will viewing the area from a truck or even a helicopter be sufficient?

Another way of stating the intended result that is more auditable, although still imprecise, might be:

- *Within a development unit under a resource development permit, the licensee must identify all forest health risks in a timely manner.*

Another example of the lack of clear, measurable, enforceable results exists for riparian management. One of the intended results for riparian management is:

- *maintenance of water quality within the range of natural variation*

This statement of result does not indicate the time frame. Over what period of time is the natural range of variation considered—10 years, 25 years, 100 years? And in what time period will you measure the result? During harvesting? A week after harvesting? A year after?

Further, the characteristics of water quality are not described. These could include turbidity, dissolved oxygen, etc. Does water quality include taste?

This result statement for water quality illustrates another point. Some of the intended results can only be measured if there is baseline information. Where will that baseline information come from? In the case of water quality, for example, there is not likely to be information on the natural variation.

Milestones

In many cases, there will be a need for milestones—short-term results that can be used to evaluate progress toward long-term results. This will be particularly important for results that will take many years to achieve, such as free-to-grow. Government needs to have a means to assess whether the results are likely to be achieved, to enable intervention in those cases where it appears obvious the intended result will not be achieved. This is especially important in those circumstances where failure will not be remedied by imposing a penalty, or where a licensee finds it more economical to fail to achieve the result and simply pay the penalty later.

Landscape level planning

The results-based code will rely heavily on landscape level planning to achieve certain key results for values such as landscape level biodiversity, visual quality, access management and range. The current Code has a similar design, although the district manager's discretion to not approve forest development plans provides a safety net that enables consideration of landscape level issues where they have not yet been resolved by land use planning. Unfortunately, the incomplete state of landscape level planning has been a serious deficiency in the implementation of the Code. Although much work has been done, much work remains to be done.

Old-growth objectives have still not been established seven years after the Code was enacted or within the three years promised in the *Landscape Unit Planning Guidebook*. Another example is water quality objectives for community watersheds. There are requirements in the current Code to meet known water quality objectives, which is a results-based requirement. Yet, after seven years, there is only one water quality objective in place. These examples illustrate that establishing results is not an easy task.

Under the results-based code, there will be no protection for landscape level biodiversity or certain other values in any given location unless there are objectives in place arising from landscape level planning. However in some cases, the discussion paper contemplates—but does not specify—interim measures.

Public input to landscape level objectives

The discussion paper states that landscape level zones and objectives will operate as controls on the location and intensity of forest development. These controls are said to be an essential component of a results-based management regime, as they will state what result is to be achieved and where resource management must be effected at the landscape level for certain values. Land use zones and objectives are to be established by the Ministry of Sustainable Resource Management (MSRM).

The legal mechanism connecting the landscape level zones and objectives to forest practices on the ground will be the approval of a resource development permit. Specifically, test #2 determines whether the proposed locations of development units meet each of the legal objectives (if any) for the land use zones covered by the resource development permit.

In its report of forest development planning in BC, the Board recommended that government move to a system with landscape level plans that address a broad range of resources, and forest development plans that focus on cutblocks and roads. The MSRM proposal for sustainable resource management plans is consistent with the recommended approach. However, the Board recommended that landscape level planning also include broad consultation with the public on the establishment of objectives for resources.

The current Code has been operating in an environment where landscape level plans have largely been absent. The result is that landscape level issues (such as old-growth retention, biodiversity and habitat for some wildlife species) are being debated and decided in forest development plans. Some members of the public are submitting concerns about landscape level issues during forest development plan reviews, when licensees do not have the authority to address or resolve these types of issues. Licensees are unable to address the concerns and the public is left frustrated and unhappy with the situation.

The Board is concerned that public involvement in the landscape level plans may not be sufficient as currently proposed. If the public does not have an opportunity to provide input to decisions about landscape level objectives for important resources, these issues will surface during consultation on resource development permits, leaving us in the same situation that currently exists for forest development plans.

Interim objectives

The discussion paper states that interim objectives will be in place until landscape unit objectives are established. There will be interim objectives for:

- old forest representation
- cutblock size
- ungulate winter range
- visual quality in scenic areas

There will not be interim objectives for:

- representation of seral stages other than old forest
- landscape connectivity
- temporal and spatial distribution of cutblocks
- access management
- species at risk
- lakeshore management

It appears likely that sustainable resource management planning will take years to complete. Only when it is complete will there be a full set of objectives for these important values throughout the province, although planning will need to be ongoing. This time frame means that the absence of interim objectives for important forest values is a concern.

The following example from the Board's North Jervis forest development plan review illustrates the concern. There, even the existing Code—involving review and approval of operational plans—failed to adequately conserve scarce habitats for wildlife species that are at particularly at risk due to forest practices. For example, the marbled murrelet (a small seabird that nests in mature forest) is classified as a threatened species both nationally and provincially. Continuing loss of nesting habitat through forest practices is a major threat. In particular, the nesting habitat in the Georgia Depression along the Sunshine Coast Forest District is severely depleted.

According to provincial policy, identified wildlife such as marbled murrelets are to be managed at the landscape unit level to maintain 10-12 percent of the original nesting habitat. That is to be done through the establishment of wildlife habitat areas that are specifically designed to minimize disturbance or habitat alteration to a species-limiting habitat. Where research is lacking, statutory decision-makers are advised to adhere to the precautionary principle—where there are threats of serious or irreversible damage to the species, lack of full scientific certainty should not be used as a reason for failing to implement appropriate, cost-effective environmental measures.

The Board, during a review of a forest development plan approved in 2001, found that only 175 potential wildlife habitat areas remained in the entire district as of 1995, and that this was only 8.6 per cent of the original suitable habitat—well below the 10-12 percent objective. By late 1999, only eight percent of suitable habitat remained, but additional cutblocks had been proposed and approved. By 2001, that had eroded much further, to only 6.8 percent remaining. Nevertheless, additional cutblocks in remaining patches of suitable habitat were proposed and approved in 2001.

The Board successfully appealed that approval, but the fact remains that even under the current Code, there are risks to adequate management and conservation of murrelet nesting habitat. The provisions of a results-based code, with sparse resource development plan content and the prospect of continuing delays in both landscape level objectives and wildlife habitat area designation, are not likely to reduce the risk of extirpation of marbled murrelets in southern coastal BC.

In this example, the rate of reduction in habitat between 1995 and 2001 highlights the importance of meaningful interim objectives. Original suitable habitat went from 8.6 per cent in 1995 to 6.8 per cent in 2001, with cutblocks still being proposed and approved.

The interim objectives for old forest representation and ungulate winter range will be crucial in the first years of the results-based code. Unfortunately, they are not described in the discussion paper. We understand, however, that the *Landscape Unit Planning Guide* may be used as an interim objective.

The guide establishes objectives for percentages of old growth retained in an area. However, the guidelines do not map the locations where old growth is to be retained. It is not clear how a district manager could use this to approve or reject a resource development permit, particularly as the resource development permit will not be required to show cutblock locations.

Another concern is the district manager's ability to exempt resource development permits from interim old-growth objectives when necessary to "achieve timber supply objectives as per existing Code policy." This policy cap limits the impact of biodiversity measures on timber supply.

Interim objectives need to provide an incentive to licensees and government to complete landscape level planning. For example, the interim objectives could require licensees to default to high biodiversity emphasis in the absence of biodiversity objectives. The objectives could also require riparian reserves to be double the legal width until either landscape level planning has been completed or a licensee demonstrates (through assessments and plans) that landscape level values will not be compromised. These restrictive interim objectives would encourage government and industry to complete landscape level zones and objectives to relieve the requirement to follow the interim objectives.

Existing land use plans

It is not clear that the results-based code will be able to deliver some of the promises in existing land use plans, particularly in special management zones. A recent government report states that:

- *With current government downsizing of agencies and the reduced funding capability of both government and industry, it is unlikely that SMZ specific local planning will be undertaken for some time. ("Review of SMZ Working Group Recommendations ~ 2002", Ministry of Sustainable Resource Management, April 2002)*

For example, the Vancouver Island Summary Land Use Plan establishes special management zones where:

- *management is to be based on the primary environmental, cultural and recreational resource values identified, and extractive and non-extractive resource use and activities are to be conducted in a manner compatible with the identified primary resource values.(p.33)*

There do not appear to be mechanisms under the results-based code to identify and give priority to some of these primary values in a timely way. Identified primary resource values include tourism resources and wildlife. For example, the Nahmint special management zone (25,000 ha) is identified as "dispersed pockets of winter range, overall high value and capability for ungulates, carnivores, marbled murrelet and northern goshawk; waterfowl wintering area and estuary habitat in Nahmint Bay, lower Nahmint."

Involving the public

Public confidence

One of the reasons the current Code was enacted by the legislature was to restore public confidence in forest practices in British Columbia. The objective of maintaining public confidence remains of paramount importance.

Factors contributing to public confidence include measures to prevent unacceptable results, ensure adequate enforcement and achieve clear, measurable results. These are addressed in other sections of this report. Other factors in maintaining public confidence, discussed in this section, include:

- public involvement in operational planning
- openness and accountability—the public can see or find out what is happening, and accountability is clear and enforceable.

We do not propose that the public have a veto, or that consensus should be the goal, but the public must have an opportunity to express their views and have them seriously considered. Public involvement also needs to be ongoing, rather than a time-limited review and comment period. Public consultation is often seen as simply a process requirement. However, public confidence in forest practices can also be seen as a result. Consideration should be given to adding public confidence to the list of values for which objectives are established.

Public involvement

Public consultation is an important means of identifying important resources and community values, and addressing them during the planning stages. In addition to recognizing the democratic rights of citizens to participate in public decision-making processes, effective public consultation in forest management helps to ensure that the diversity of ecological, economic and social views related to forests are considered by decision-makers.

The Board's work has found that the existing process for review and comment on forest development plans is not working effectively, so the Board supports efforts to find a more effective way to involve the public. The Board likes the discussion paper's emphasis on involving the public during preparation of a resource development permit, rather than only after it is prepared. This is consistent with our FDP report. However, the proposed public involvement under the results-based code is not adequate. The discussion paper does not propose an effective way to engage the public, and it does not provide a goal or result against which to evaluate whether public involvement is effective or adequate.

Resource Development Permits

Some people are concerned with landscape level issues, and we addressed comments about that earlier in this document. Other people are concerned about site-specific issues. These may be adjacent residents or people who use the area proposed for development for recreation. The resource development permit will not be required to show cutblocks, roads or other site-specific information. It is unclear from the discussion paper what information, if any, will be provided to the public. It may be impossible to satisfy public concerns without identifying the exact location of activities and ensuring measures are implemented

to mitigate impacts. But there will be no mechanism for this under the results-based code, unless district managers somehow require it at the resource development permit stage.

Further, some people may be reluctant to identify the exact location of a cultural or other resource when they don't know that operations will actually impact it. The real concerns may arise when the flagging tape is placed on the ground. At that point, the public does not have an avenue to address concerns. Injunctions and protests may be the only means available to them.

The intent of the proposed approach may be to allow flexibility in making changes to the exact locations of cutblock boundaries and roads. However, there are other models that would allow the public to see where activities are planned without tying licensees to an exact location. It would be possible for licensees to identify the approximate boundaries of where they expect to operate, while still allowing flexibility in the final boundaries once the licensee gets out on the ground. For example, in Ontario a licensee must identify a road corridor in its plans. Once approved, they can locate the road anywhere within the corridor. This approach allows the public to comment on the proposed location (the corridor). Any important resource or community values within the corridor can then be identified and addressed during the planning and review process. This builds public confidence that the result on the ground will be acceptable.

What is adequate involvement?

The proposed approach leaves it to individual district managers to decide what constitute adequate consultation on a resource development permit. The discussion paper and the background papers provide no guidance as to what would be adequate, or what the minimum would be. Through the course of its work, the Board has seen a very broad range of opinions among district managers about what adequate public consultation means. Without some guidance about adequacy, we will see different requirements in different districts and even for different licensees. The public will have no assurance that consistent approaches and standards are being applied across the province. This will not enhance public confidence.

The legal framework needs to set out the minimum expectations for public consultation. However, specifying minimums such as 60 days for review or placing a notice in the newspaper is not the most effective approach. In our experience, many licensees and district managers simply default to the minimum requirement. The minimum needs to be sufficient to ensure public confidence and credibility. It should require consultation during development of a resource development permit, documentation of how public concerns have been addressed, and public notification and reasons once a resource development permit is approved.

If adequacy of consultation remains a discretionary decision, guidebooks should identify best practices to achieve some consistency in how district managers determine consultation

has been appropriate. Guidebooks can also encourage licensees to implement best practices that meet the needs of the local community. The Board's FDP report suggests licensees should consult the local community and design their consultation approach to meet the needs of the community. Where a public advisory committee exists in a forest district, it may be appropriate for the committee to advise the licensee on how best to consult the community and to advise the district manager on the adequacy of the licensee's consultation.

If the results-based code were to set out a legal framework for consultation, it would ensure that all licensees meet minimum standards. It may also be desirable to allow those licensees with established public advisory groups to be exempt from the results-based code consultation requirements, provided they have agreement with the public advisory group that their existing process serves as an adequate replacement.

Another suggestion is that licensees be required to document the commitments made to the public through the consultation process, in order to get resource development permit approval. This would create some public accountability and would allow the public to monitor commitments and ensure are followed through.

Openness and accountability

Operational plans allow the public and government officials to see exactly what activities are proposed, and information is presented to the public in a consistent way. Under the new results-based model, much of this openness and consistency in approach may be lost. Apart from resource development permits and information submitted in support, plans prepared by forest companies will not be available to the public under the *Freedom of Information and Protection of Privacy Act*.

Enforcement

Difficulty, expense and uncertainty

Enforcement will likely be more difficult, expensive and uncertain under the results-based code as proposed. As a result:

- government may be left "holding the bag" for significant financial costs of remediation efforts;
- the fear of penalties may not be a sufficient deterrent to poor planning; and
- minor contraventions are more likely to be overlooked.

As well, of course, it will often not be possible to undo damage that might have been avoided by planning requirements. The public will have lost resource assets without compensation.

All of this could lead to an erosion of public confidence.

There are several reasons why enforcement will be more difficult, expensive and uncertain. They include the lack of operational planning, lack of clear and measurable results and milestones, and the possible introduction of a due diligence defence.

As the Forest Appeals Commission noted in Decision 96/05(b): "...one of the major reasons why the administrative penalty is amongst the most effective instruments available to regulators is because it enables them to give operational effect to the fundamental principles of deterrence: namely, effective sanctions, certainty of outcome, and a swift and sure response to detected violators..."

Enforcement under the results-based code will require proof of the following:

- The expected result was not achieved or the result was unacceptable. This is new under the results-based code. It will require agreement on what the expected result is.
- A particular forest practice caused the failure to achieve the result. This is not new, but the absence of operational planning requirements and the longer time frame will make proof more difficult
- A licensee failed to exercise due diligence. This is new: the discussion paper does not clearly state how due diligence will be relevant.

In addition, it will be necessary to identify the responsible party and recover the penalty from them. Given the longer time frames under the results-based code, this will also be more difficult.

Proving that the result was not achieved

Proving that a result was not achieved will require clear, measurable results and it will require evidence. As a top enforcement official at the US Environmental Protection Agency stated: "Requirements that are unclear, imprecise, ambiguous, inconsistent or contradictory may be difficult or impossible to enforce."ⁱⁱⁱ British Columbia's international reputation could be damaged if enforcement fails due to unclear results.

Gathering and presenting evidence will also be more difficult. For example, consider the expected result for water quality to remain "within the natural range of variation." An enforcement action cannot hope to succeed if the government does not have baseline information on the range of natural variation. And no objective criteria for water quality are specified, so it will be necessary to consider expert evidence and the evidence of residents—for example, is the taste of the water a measure of water quality?

Proving the connection between the result and the forest practice

Under the current Code, operational plans describe what licensees are expected to do. If licensees don't follow their plan, government officials can take enforcement action. Similarly under the current Code, there are some process requirements such as the obligation to inspect roads. Under the results-based code, without operational plans or process requirements, enforcement will be more difficult. It will be necessary to prove the connection between the forest practice and the result, sometimes many years after the forest practice took place.

For example, in Forest Appeals Commission Appeal No. 98-FOR-07, company geological experts presented evidence that a landslide was a natural event. Government experts disagreed, and concluded company actions had triggered the slide. The Commission agreed with the government experts, and came to this conclusion in part because the licensee had contravened a specific process regulation that required the licensee to inspect and repair the road to ensure that the drainage system was functional.

As another example, in a review of the Arrow Forest District manager's March 7, 2001 decision regarding Slocan Forest Products, the district manager concluded that a recent landslide had not been the fault of the licensee. The district manager relied upon the expertise of a Ministry of Forests (MOF) geomorphologist. It was only after a citizen group investigated the matter that the district manager was presented with compelling evidence that the slide had been caused by the licensee's failure to clean out a stream, as required by its silviculture prescription. The district manager reversed his position, and found the licensee in contravention.

Three points arise from these two examples:

- It can be extremely difficult to determine what the real cause of a landslide is. Scientific experts generally couch their conclusions very carefully, citing uncertainties and lack of knowledge. The ambiguity of science allows a broad spectrum of legal conclusions to be drawn. This often will invite a battle of experts, as in the first case mentioned.
- If there is no specific tangible requirement (such as clean debris from streams), it will be difficult to prove the general proposition that a particular activity resulted in a landslide.
- If it is as difficult to establish the cause of a recent landslide as it was in the latter case, imagine how much more difficult it would be to establish the cause of a landslide that happens years after logging—typically, 10 to 15 years.

Proving absence of due diligence

Due diligence is a defense that may be raised by persons charged with regulatory offences in the courts. In order to succeed, defendants must show that they did not consent to the

offence or have knowledge of it; and that they had taken reasonable care to avoid the offense taking place.

The discussion paper describes three options for the availability of the due diligence defence but does not state a preference. However, it is implicit in some of the discussion that due diligence will be a defence.

For example, the discussion paper states, at page 53:

If the required result is not delivered, and the proponent cannot show due diligence, there are consequences. Where a result is not achieved, failure to use the best science or best practices can work against the proponent in compliance and enforcement proceedings.

However, the availability of a due diligence defence makes enforcement proceedings more cumbersome. As one expert has stated: "any regulatory enforcement proceeding which has a mini-negligence trial in it is only practical when the stakes are very high."^{iv}

The discussion paper argues that its proposal will not make proceedings that much more complex, because due diligence can already be considered when the tribunal is deciding the amount of the penalty. However, far more resources and time can be expected to be invested in establishing due diligence if it can be used as a complete defence to the disciplinary penalty, rather than just one of a number of factors to be considered in setting the quantum of a penalty. This is why most jurisdictions (including Ontario and American jurisdictions) do not allow the defence of due diligence for administrative penalties, but may allow it to be considered when calculating amounts.^v

Identifying the responsible party and holding them financially accountable

The long time frames involved in seeing results in forestry present challenges to enforcement. Government officials may try to bring enforcement action relating to a landslide or a failure to reforest 15 years after the event. Changes in corporate ownership of licences over time make gathering evidence and proving responsibility more difficult (see Figure 1).

Figure 1: The top 15 forest companies in British Columbia, by annual allowable cut (AAC) – 1976, 1998 and 2002

(shaded companies are no longer licensees)

1976	January 1998	June 2002 (* indicates new since 1997)
MacMillan Bloedel	Slocan Forest Products	Canadian Forest Products Ltd.
BC Forest Products	MacMillan Bloedel	Weyerhaeuser Company Limited
BC Cellulose	Canfor Corp.	Slocan Forest Products Ltd.
Canadian Forest Products	West Fraser Timber Co. Ltd.	West Fraser Mills Ltd.
Northwood	Doman Industries Ltd.	Doman Industries Ltd.
Crown Zellerbach	International Forest Products	International Forest Products
Rayonier	Northwood Pulp and Timber Ltd.	Riverside Forest Products
Weldwood	Skeena Cellulose Inc.	Weldwood of Canada Limited
Eurocan	Riverside Forest Products Ltd.	*NWBC Timber and Pulp Ltd.
Tahsis	Champion International Corp.	Louisiana-Pacific Canada Ltd.
Cattermole/Finlay	Weyerhaeuser Co.	Tolko Industries Ltd.
West Fraser	TAL Acquisition Corp.	*Robert Stewart Holdings Ltd.
Netherlands	Tolko Industries Ltd.	*TFL Forest Ltd.
Evans Products	Ainsworth Lumber Co. Ltd.	Pope and Talbot Ltd.
Weyerhaeuser	Pope and Talbot Ltd.	*Abitibi Consolidated

Sources: *Report of the Royal Commission on Forest Resources* (Pearse Report), 1976; *Falldown*, Marchak, Aycock and Herbert, 1999; *Provincial Linkage AAC Report*, MOF, June 10, 2002.

In addition, companies' financial difficulties can sometimes mean that government is left with financial responsibilities. For example, according to the Vancouver Sun on May 30, 2002, government is the owner of Buffalo Head Forest Products, which has outstanding silviculture obligations estimated at \$6.3 million.

One way to address some of these concerns may be to establish an insurance fund to which all licensees and the government timber sales program would be required to contribute. The amount in the fund would be sufficient at any one time to cover all known outstanding liabilities, with an additional contingency for potential future liabilities.

An additional advantage of such an arrangement would be that it would create peer pressure among licensees to perform well.

Deterrence – will the fear of penalties prevent unacceptable results?

One of the implicit assumptions in the discussion paper is that the elimination of operational planning and government approval of most plans will be compensated for by holding licensees accountable.

Most licensees and the individuals who work for them will behave responsibly and professionally. Forest companies will want to do a good job as a matter of principle, to satisfy markets, to achieve certification and to maintain social licence. They will also want to avoid the prospect of financial penalties in the future. However, their interests will not always be congruent with the interests of the landowner, and it may not be reasonable to expect them always to represent that interest.

Furthermore, there is a need to recognize that "poor performers" will exist:

"Experience with environmental programs in many countries has shown that enforcement is essential to compliance. This is because, in any society, many people will not comply with the law unless there are clear consequences for noncompliance." vi

Under the results-based code, forest companies will have an economic choice to make. Should they spend money now on assessments and planning to avoid causing landslides or damaging streams with important values? Or do they accept the risk that unacceptable results will happen and that they may have to pay a penalty in the future? In some cases, it will make economic sense to risk a future penalty. Note that the cost of an assessment to a company includes the risk that the result may be a decision that logging is not acceptable in certain locations.

These concerns could be partly addressed by an appropriate penalty regime. This would need to include penalties that increase based on the time between the incident and the imposition of the penalty. The increase would need to be large enough to offset the return on investment that a licensee would have benefited from. One concern with is if penalties

become too large, government officials will be reluctant to apply them because of concern about the financial consequences to the company and its employees.

Other enforcement issues

Formulas to compensate for environmental damage

The discussion paper proposes that formulas will be used to determine the amount payable for the absolute liability compensatory penalty (p. 50). Similarly, Bill 47 proposed a formula and methodology for assessing compensation. It's difficult to see how a formula can comprehensively deal with the diversity of impacts that may be visited upon Crown resources by different events. The Ministry of Forests has proposed this for some time, but has yet to propose a convincing model. How can a straightforward formula lead to accurate compensation for the Crown's losses?

Two-step process

The discussion paper appears to advocate the approach of establishing separate compensatory and disciplinary (i.e. deterrent) penalties. This is the same approach that was enacted in Bill 47 in 1997, but never brought into force. First, the official would determine if a contravention had taken place. Once that was decided, a compensatory penalty would be applied, based on the impacts and cost to government and the profit derived by the person from the contravention. After that, it would be mandatory for officials to undertake another inquiry — the official would have to determine whether or not the licensee or contractor had exercised due diligence. If not, then a second performance (disciplinary or deterrent) penalty would be applicable.

Government would keep a performance record, which would only reflect cases where the secondary disciplinary penalty had been issued. Cases where the licensee was only found liable for a compensatory penalty would not be reflected in the performance record. The aim of this additional tier of hearings is to make the performance record a purer reflection of only the situations where the licensee was proven to be at fault for the breach.

This proposal would make the system more complex, not simpler, as per the government's stated aim. It would replace a one-step procedure with a two-step proceeding (contravention proceeding, followed by a second disciplinary or due diligence proceeding). This could be cumbersome. It has the potential to bog down the system and lead to fewer proceedings. This could ultimately hamper effective enforcement

Coordination of agency enforcement efforts

The Board urges government to consider how the new legislation could institutionally encourage strategic coordination between MOF and the Ministry of Water, Land and Air Protection (MWLAP). Lack of such coordination was found to be striking in the Board's

audit of the province's framework for Code enforcement (*An Audit of the Government of British Columbia's Framework for Enforcement of the Forest Practices Code*, December, 1999).

In the past, the Ministry of Environment, Lands and Parks (now MWLAP and MSRM), the Ministry of Forests and the Ministry of Energy and Mines (MEM) shared compliance and enforcement responsibilities. The discussion paper states that the Ministry of Forests will conduct compliance and enforcement, and that the Ministry of Water, Land and Air Protection will maintain its compliance and enforcement role for Code environmental standards. It is not clear from the discussion paper what will happen with oil and gas and mining activities that affect forest resources and values, particularly when it comes to enforcement.

The discussion paper raises the issue of the need for better coordination of interagency enforcement efforts. Board audits and investigations have identified numerous concerns about the failure of such efforts in the past. Concerns with the current proposal include:

- This will generally work for MOF, with a concern that certain environmental features will not be noted and may be missed in inspections. Past process had MOF contacting MWLAP, although this was rarely done.
- MWLAP is to focus on the environment - however from what we've seen to date, those people in MWLAP trained at compliance and enforcement, the conservation officer service, refuse to use the administrative processes of the Code and choose to go through the tougher burden of proof with the *Fisheries Act*, or other acts. The Code is but one tool in their tool belt, and from our experience, it is an infrequently used tool. The rest of MWLAP have no compliance and enforcement training, and from our experience, they don't want to get involved with compliance and enforcement.
- Other agencies (the Oil and Gas Commission, MEM) have no training, experience or desire to do compliance and enforcement with respect to the Code. They are generally not foresters and unless a contravention was blatant, such as machinery operating in a creek, they wouldn't be able to identify forestry related non-compliances.
- Also, if the agencies work in a silo format—meaning no interagency interaction—there could be duplication of effort that would be costly to the ministries as well as annoying to the licensees.

The Board has also recommended that ministries work cooperatively and government ensure that non-timber resources are addressed; and that MOF and MWLAP staff develop a joint strategy to ensure that compliance and enforcement activities fully consider and address water, fish and wildlife resources. The results-based code needs to address the problem of ensuring inter-agency coordination. Training is the key here, but training that many different people to be able to identify non-compliance forestry and environmental issues would be very costly. As well, cross-ministry communication is vital - even if they don't plan to work together, they should know who is going to inspect what and when so they will have less chance of duplicating inspection work. (See the following Board reports for further reference: *Significant Breaches of the Forest Practices Code along the Power Line Corridor for the Kemess South Mine*, June 2000; *Seismic line crossing of streams, east of Fort*

Nelson, BC, November 2001; and Audit of the Government of British Columbia's Enforcement of the Forest Practices Code in the Vernon Forest District, November 2001.)

Useful enforcement proposals

Several specific proposals in the discussion paper appear useful. The first of these is the proposal that licensees be obligated to notify government when they are starting and stopping work. The lack of such information has hindered enforcement in the past, because inspection officials did not necessarily know when and where operations were taking place.

The second useful proposal is to replace administrative reviews with a process for reconsideration by the decision maker, followed by potential appeal directly to the Forest Appeals Commission. Eliminating the administrative review step of the appeal process may simplify and shorten the process. Review panels were initially envisioned to be a more informal process than Commission hearings, but they have become nearly as formal, and arguably redundant.

A third useful proposal is the proposed new power to allow government to intervene before a contravention has occurred. In concept this may be a useful innovation. The Board has recommended on several occasions that decision-makers need the authority to revoke approvals of operations if they receive new information indicating that an activity should not proceed because it may cause irreparable harm to resources or the environment.

However, no details about this new power are given. Several issues would need to be addressed, including:

- Monitoring
- Criteria for when intervention is warranted
- Liability of the statutory decision maker.

Other comments

Framework for commercial use of forest resources

The discussion paper does not appear to consider the importance of potential sources of wealth generation other than timber. It appears to accept the model that makes timber supply issues pre-eminent. There are opportunities in British Columbia to develop new commercial uses of forests and to expand existing commercial uses (such as tourism). Existing forest policy and regulations do not allow a statutory decision maker to effectively consider competing economic uses of public forest resources when evaluating proposals to develop timber. The results-based code could make this worse.

As one example, the resource development permit system could have a chilling effect on new economic initiatives in alternative business sectors because it grants an option to a licensee to harvest in an area without requiring information about the specific location. The flexibility the results-based code provides for the forest industry may be lead to greater uncertainty and loss of flexibility for other commercial users of the forests.

In the Vancouver Island Summary Land Use Plan, the Goletas Channel special management zone (11,000 hectares) is identified as having high lodge/resort potential throughout. There does not appear to be an adequate mechanism in the results-based code to offer priority to the lodge/resort potential over timber in this special management zone.

There is also a need for the code to include broader recognition of other existing users, such as range, oil and gas.

First Nations

It is clear from court decisions such as *Delgamu'ukw* that some land on which forest development takes place is land to which First Nations have aboriginal title or rights. The location and extent of most of these areas have not been agreed upon or determined by courts. However, two recent decisions of the British Columbia Court of Appeal have pointed out the need for consultation even where aboriginal rights or title have not been conclusively established in the courts (*Haida Nation v. BC and Weyerhaeuser*; *Taku River Tlingit First Nation v. Ringstad*).

Appendix 2 of the discussion paper sets out draft legislation for resource development permits. The draft states that a district manager may refuse to approve a resource development permit "if satisfied that consultation with First Nations has not been consistent with the requirements of the Ministry of Forests consultation policy and guidelines."

Consistency with government policy and guidelines is not necessarily consistency with the law relating to aboriginal rights, title and self-government. Policy is periodically amended to follow developments in the law, but even then, policy only reflects government interpretation of the law. Periodically, courts enunciate interpretations that are significantly different from those put forth by government. To better match legal requirements, the Board encourages government to ensure that discussions are held with First Nations and that they are included in the development of the legislation.

There is also the issue of appearing to delegate the government's Constitution-based consultation obligations to licensees. The government proposes to encourage industry to play a greater role in facilitating First Nations' involvement in the planning process. The first point is that the planning process proposed for the results-based code is much less explicit and much more limited than that in the current Code. The encouragement of licensees to play a greater role in facilitating First Nations' involvement could easily be misunderstood to mean that government will encourage licensees to do the consultation

that is required of government. Such apparent passing-off of government obligations to licensees seems an imprecise way for government to fulfil its responsibilities, and obscures accountability. The government's obligation to adequately consult should be clearly stated.

Sustainable forest management and continual improvement

The discussion paper indicates that there will be continual improvements in the results-based code over time. However, the results-based code itself does not provide for this. It would be desirable to have some elements of continual improvement set out in the legislation. This could include monitoring and public reporting on a regular basis, as well as a formal requirement for government to review the legislation and report to the public after five years, for example.

One possible reference point for reporting could be the criteria and indicators set by the Canadian Council of Forest Ministers.

The discussion paper emphasizes a balanced approach to achievement of social, biodiversity and economic values. However, there does not appear to be any benchmark for decision makers, industry planners and the public against which their decisions, proposals, and concerns can be tested. Will the benchmark be provided by the preamble to the existing Code, by MSRM's sustainability principles, by public consultation, by goal statements or by district manager decisions?

Decisions require choosing between foreseeable outcomes. Without a clear benchmark against which to test difficult choices, it is likely that inconsistent decisions will be the norm, and loss of public confidence will be the consequence.

Third-party certification is a useful tool, but it should not be relied upon exclusively by government. Certification and sustainable forest management are different concepts, although there is considerable overlap between the two. It would be better to focus on sustainable forest management and set objectives and targets for criteria. Then certification becomes an 'add-on,' rather than a driver of forest management.

Government accountability for forest health

The forest health results set out in the discussion paper place no obligation on government, except in areas under resource development permits held by the timber sales program. As licensees will be obliged to conduct activities to detect forest health factors, would it not be appropriate for government to have a similar obligation in areas that are not under resource development permits?

Water quality is not a right

The discussion paper states that resource development permit Test #1 protects the rights of licensed domestic water users (p.35). Test #1 seeks to ensure that resource development

permits do not conflict with other tenures or other legal rights conferred by government. It is our understanding that licensed domestic water users do not have a legal right to water quality.

Forest Practices Board

The discussion paper confirms the result of government's core services review of the Forest Practices Board. The review identified broad recognition that the independent role of the Board will become even more important under a results-based code. The Board anticipates that legislation implementing the results-based code will continue the core functions of auditing and investigating complaints about forest practices and the appropriateness of government enforcement, special investigations and administrative appeals.

There will need to be a mechanism for the public to appeal decisions to approve resource development permits. Under the results-based code, those decisions will be based on discretionary tests. Given that the district manager's job is to get the wood out and generate economic returns for the province, the public will not be easily satisfied with a district manager approval that goes against their wishes. An independent view, such as the view of the Forest Appeals Commission, will be necessary. The results-based code legislation should either give members of the public a right to appeal the approval of a resource development permit, or the Forest Practices Board should have the right to appeal the approval on behalf of the public.

¹ 151 D.L.R. (4th) 32, paras. 127 and 85

² *Evaluation of Soil Degradation as a Factor Affecting Forest Productivity in British Columbia* FRDA Report 025. Utzig, G. and Walmsley, M, 1988

³ Chery Wasserman, Director for Policy Analysis for the US EPA Office of Enforcement and Compliance Assurance, in the EPA publication, *"Principles of Environmental Enforcement"*, Introduction to Chapters 3 and 7.

⁴ L.S. Fairborn, *"Administratively-Imposed Civil Monetary Penalties: Features, Opportunities and Constraints"*, prepared for the Canadian Bar Association Continuing Legal Education Committee, Administrative Law Section and the General Practitioner's Conference on Emerging Issues in Administrative Law (May 15, 1992); as cited by the Forest Appeals Commission, Appeal decision No. 96/05(b), pp. 16-17.

⁵ See *"Administrative Monetary Penalties Implementation Policy"* Ontario Ministry of the Environment, December 2001, para. 8; and *"Administrative Penalties: Regulation Compendium"*, Ontario Ministry of the Environment, September 2001, para. 6.3 for a discussion of the rationale for allowing due diligence when considering quantum, but not on findings of contravention. Also see Chris Rolfe, *Comments on Proposed Changes to Part IV, Division 3 – Administrative Remedies in the Forest Practices Code of British Columbia Act*, July 24, 1997, p. 4 for a discussion of the *US Resource Recovery and Conservation Act*, which imposes absolute liability, with due diligence relevant only to fine amount.

⁶ See reference iii.

Forest Diseases and the Proposed Results-Based Code

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Introduction

Thank you for the opportunity to comment and provide suggestions on the newly proposed Results-Based Forest Practices Code. I would like to comment on several aspects of the code for protecting forests from tree diseases.

Forest diseases have long been recognized as major issues in protecting and managing forest resources. In the current BC forest practices code, tree diseases are identified and treated before and during harvesting and silviculture operations to protect, sustain and enhance productivity of young and older trees.

In contrast to damage caused by many forest insects, most tree diseases are inconspicuous or cryptic, and cause persistent or recurrent damage rather than epidemic outbreaks. Characteristically they cause long-term chronic reductions in tree survival, growth and timber quality. On occasion, however, some disease effects can be desirable for enhancing structural variability in forest cover, increasing biodiversity and causing tree defect and decay that makes trees more suitable for feeding, nesting or roosting habitat for wildlife. The challenge in managing forest diseases is to identify potentially damaging situations, develop effective strategies, and apply management practices or treatments to prevent or reduce excessive or unwanted damage and create desired forest conditions.

The proposed code has several good features for disease management, but several improvements are needed both for more explicit provisions or standards in the code and particularly for related programs that are essential components in implementing the new code, including certification programs, and increased reliance on professional judgement. From almost 40 years of experience as a researcher, instructor, professional forester, program manager and leader, and as a forest pathologist, I believe that more emphasis is needed on management of forest tree diseases to ensure and enhance sustainability of forest resources in British Columbia.

As a basis for outlining these concerns, I would first like to describe some of the important tree diseases in BC, their impacts and current management strategies.

Important forest diseases in BC

In BC chronic, endemic infestations of wood decay fungi, root disease fungi, dwarf mistletoes, and stem rusts cause substantial impacts on individual trees, stands of trees and in some instances, forests. These diseases and pathogens are described in detail in several Ministry of Forests forest practices code guidebooks and in recent publications (1).

Wood decay is common in BC in coastal and interior cedar-hemlock and spruce forests in living white spruce, western hemlock and western red cedar trees of usually 120 years or older. Numerous fungi can live in and cause decay of the non-living heartwood of a tree.

Trees that have been wounded or damaged and those with fungal conks or mushrooms are often extensively decayed. Live decayed trees provide valuable habitat for cavity excavating and nesting birds and animals. However, in forestry operations and in recreational or developed sites decayed trees pose a substantial danger to workers, visitors and facilities due to the risk of tree breakage or collapse. In forestry in timber cruising and log scaling, tree volumes are reduced by the amount of internal decay or stain, resulting in a loss of revenue to the province. The amount of wood that is decayed each year in provincial forests was estimated (2) at approximately 13 million cubic metres.

In practice, very little can be done to avoid or minimize losses due to wood decay in live trees. A protective chemical (sodium borate) can be applied to cut surfaces of stumps during spacing or thinning but the efficacy of such treatment is uncertain. Some fumigating chemicals can be injected or applied via boreholes into trees and in large wood timbers. These are effective in preserving wood, but use of chemical pesticides in forestry is often so controversial that they are seldom used. Wood decay is expected to become increasingly important in BC because of an increase in certain forest practices. These include partial cut harvesting that damages or wounds trees making them more vulnerable to decay, and retention silviculture systems that reserve trees that have more extensive decay such as previous understory trees or larger, older trees.

Root diseases are caused by several fungi that are common and damaging to young and old trees in forests of Douglas-fir and other tree species in coastal and southern interior and in spruce forest of central interior BC. A few of these fungi spread by air or by insect-borne spores, but most persist as mycelia and decay in old trees, dead roots and stumps. They spread within or between trees by growing in or along roots. Roots are killed as the fungus advances, and an infected tree usually dies soon after the base of the stem or root collar is colonized. Depending on tree size and rate of growth, young trees can be killed within a few months to years after a root becomes infected. Older, larger trees can survive or resist infection for decades or even centuries. Although infected trees might survive for several to many years, they usually suffer a progressive reduction in stem growth because of the loss of root tissue and a shift in tree metabolism from growth to defence reactions.

Root diseases can have pronounced effects at a stand level such as reduction in stocking (numbers of stems per hectare), creation of open or unstocked areas, changes in species composition to less susceptible species or younger susceptible trees, and reduced growth rates. It is suspected that these effects drastically reduce overall site productivity in some extensive areas such as the interior cedar-hemlock, "wet-belt" forest. Root disease also reduces the windfirmness and structural integrity of a tree and increases the risk of tree collapse, particularly during and after a commercial thinning or partial-cut harvesting. Root disease also is a source of wood decay in older trees and can cause degrade in log quality in younger trees due to stain. Overall impacts from root diseases due to tree mortality and growth reductions were estimated at 5 million cubic metres per year.

Strategies for reducing losses to root diseases are limited to two options: removing stumps and roots during or after harvesting or thinning, or planting or retaining less-susceptible or less-damaged tree species. Several 15 to 30-year trials have indicated that stumping is an effective treatment on suitable sites and has an added feature of stimulating growth of several trees and shrub species. On the other hand, thinning and partial-cut harvesting without removing roots can increase impacts, particularly for armillaria root disease in southern interior BC. The fungus is capable of rapidly colonizing residual roots of partially infected trees and using this expanded food base, more aggressively attacks nearby trees. It is extremely difficult and even problematic at times to adequately manage a stand with root disease because the extent of the fungus and the disease is mostly underground, undetectable and unmeasureable. Diseased trees often do not become evident for many years after harvesting or silviculture treatments.

Dwarf mistletoes are important in BC as damaging parasites of western hemlock in coastal forests and lodgepole pine in interior regions. These plants live as obligate parasites in the sapwood and bark of live trees and withdraw water and nutrients from their hosts. They spread by seeds that are explosively discharged from berries to distances of up to 10-15m. Seeds intercepted by foliage germinate by means of a small root that penetrates into the bark. From one to approximately three years after penetration and infection, small to increasingly large swellings of wood and bark develop. Infection also stimulates excessive branching of the host tree that can develop into large distinctive masses of branches called witches' brooms.

With increasing age and size of individual plants, and increasing numbers of new dwarf mistletoe plants established on a tree, the drain in nutrients begins to slow growth of the tree. By the time 50% of the branches are infected, an infected tree shows a significantly reduced growth rate averaging 15%, and when all branches are infected there is a reduction of 30% or more of current growth. Severe infection can make a tree more vulnerable to other damaging agents such as drought and secondary bark beetles that attack stressed trees so that stands infested with dwarf mistletoe can suffer higher rates of tree mortality. Since survival and spread of dwarf mistletoe is highly dependent on live host trees in relatively close proximity, spread and impacts of dwarf mistletoes are significantly affected by disturbances such as wildfire and harvesting, and by stand and site features that affect tree growth. In some instances particularly in coastal hemlock forests, trees infected while relatively small appear able to grow in height faster than the mistletoe can spread upwards into the tree crown and apparently remain only lightly infected. Despite these occurrences and variations, dwarf mistletoes can have significant and substantial effects on tree and stand growth (3,4). In BC, impacts mostly in reduced tree growth were estimated (2) at 2 million cubic metres per year.

Strategies for controlling dwarf mistletoes are relatively simple. The most effective and commonly recommended method is to clear-cut harvest relatively large blocks, and fall any residual trees 2-3m in height or taller. Any surviving mistletoe on smaller trees can be removed during spacing or thinning, and re-invasion from infected trees around the block perimeter is usually slow and limited. On the other hand, partial-cut harvesting and thinning increase dwarf mistletoe spread and impacts. In particular the recent

implementation of "New Forestry" practices in coastal hemlock forests using small cutblocks and retaining as many live trees as possible could result in increased occurrences and impacts of dwarf mistletoe. In these instances, retaining less susceptible or non-host tree species and maintaining fairly dense, fast-growing stands could suppress dwarf mistletoe spread and reduce impacts (5). In special use or high-value sites, individual infected trees can be maintained by pruning branches to remove large brooms or severe infection.

Stem rust diseases can have substantial to severe impacts, particularly on lodgepole pine (6) and western white pine (7). Spores produced on herbaceous plants or in one species, on other infected pines, are wind-borne and under suitably moist conditions, germinate on and infect new growth of stems and branches. Infected bark tissues become obviously swollen one year after infection and in the next few years are usually attacked by secondary insects that kill the branches and stems. Young trees infected on or close to the stem within 1-2m of ground level usually die within a few years, but older or taller trees usually can survive death and/or dieback of leaders and branches for several to many years. Suitable weather conditions for rust infection occur sporadically, usually only once every five to 10 years, but in these peak years, many trees can be infected. Landform or terrain also affects frequency or severity of infection, as well as proximity to wet areas such as streams and lakes, abundance of alternate host herbs or shrubs, and genetic resistance or susceptibility of the host tree.

Several approaches are possible to reduce impacts of stem rusts. For western white pine, genetically resistant stock can be planted. These stocks are available from a 15-year Canada-BC co-operative white pine tree selection and breeding program. Non-resistant "wild" trees can be pruned up to approximately 2m height to protect them from infection. Some infected trees can be protected by cutting off a 2-3cm-wide strip of bark around the perimeter of the infected area. For lodgepole pine, genetically resistant provenances can be selected for planting stock (8), and individual trees can often be pruned to remove threatening rust cankers. Incidence surveys have also been used to determine areas of high risk for stem rusts. Stem rusts are a concern in spacing operations, and stands with an incidence of 20% or more of the trees infected are usually avoided. Incidence of stem rust is also highly variable even within one stand making assessments difficult or uncertain.

Another large important group is conifer foliar disease caused by a variety of fungi that cause needlecasts, blights and rusts. These diseases are chronic in some areas but usually are ephemeral and sporadic, with little significant or persistent effects on tree growth except for outbreaks on small trees or in some limited localities such as low-lying areas near streams and lakes. There are some notable, recent exceptions to this generalization including extensive areas of lodgepole pine in central BC that have been affected by severe foliar disease for almost every year during the last decade. These have been attributed to general climatic warming and/or extensive plantings of lodgepole pine, often in forested areas that were previously dominated by other tree species. The impacts and causal factors have yet to be determined. Control or management strategies are limited to

recommendations to avoid planting lodgepole pine in areas where it is not common, and to use provenances for seed sources that have higher resistance to foliar diseases.

Occasionally, new diseases are discovered in BC, including interceptions on imported plants or materials from other provinces or countries that can threaten resource sustainability or impede export of BC forest products. Generally, these occur infrequently and are usually dealt with as individual emergency issues. Some can have major effects such as the recent discovery of pinewood nematode in beetle- or fire-killed wood that resulted in exclusion of BC green (non-kiln dried) lumber exports to the European Economic Community. The nematode does not kill trees in BC or Canada, but has been associated with dying trees in areas of warmer climates in Japan and the United States of America.

Several diseases not present in BC but already established in Canada or the USA pose significant threats to BC resources and trade. These include scleroderris canker (European strain) of pine established in Ontario and Quebec; European larch canker in New Brunswick and Nova Scotia; and pitch canker of pines and other species, and sudden oak death, a canker disease, in California. Although several federal, provincial and state agencies are monitoring these occurrences, BC staff are maintaining a watch on these potential threats, and endeavouring to maintain or develop closer working agreements with these agencies to reduce potential risks to BC resources.

Management practices required for diseases

The new code proposal includes several activities or management practices for diseases (and insects) that licensees will be required to undertake. These include:

- Detection of diseases;
- Activities to prevent spread and/or mitigate damage;
- Avoidance of practices that exacerbate impacts; and
- Management of diseases in a manner that avoids affecting achievement of objectives or results for other forest values.

Government managers or specified officials will retain authority to declare a forest health emergency, to direct licensees and private landowners to implement treatments on specified areas, and to exempt licensees from certain practices rules and standards when they are ordered to undertake a treatment or practice for diseases or insects. The government will have responsibility to deal with epidemics; licensees must identify and document endemic levels of insects and diseases and invasive plants.

There will also be a continuing need for government to determine potential impacts of new disease threats for BC. Several diseases including scleroderris canker of pines in Ontario and Quebec and sudden oak disease and pitch canker in California pose a threat to forest trees and vegetation in BC. A critical issue for trade and access of BC forest products to export markets is to show that all or most of BC is free of a particular disease. We should expand our current provincial overview insect damage surveys to include occurrences of tree mortality and/or foliage discoloration due to diseases. Any new or expanding areas of damage need to be investigated promptly by on-ground surveys and in

co-operation with federal agencies, to identify disease-causing organisms. Many of these required procedures have been established by treaty through the North American Plant Protection Organization. Although many of these requirements are under federal jurisdiction, there is a continuing need for the province to undertake appropriate activities to protect forest resources and support international trade.

Under the new results-based code proposal, required results for bark beetles and defoliating insects can be specified and measured relatively easily and quickly because effects including tree mortality and loss of foliage are apparent within a few months to a year. However, for many insects and particularly for diseases, results are more long-term, and usually include more difficult-to-measure effects such as growth repression and distortion or reduction in wood quality. These effects can be confounded or obscured by variations in tree growth due to genetic and environmental factors. Certain types of damage can be measured at the time of the free-growing assessment in reforestation, but many effects are transient or long to develop so that eventual outcomes in terms of acceptable crop trees for timber are often uncertain. The lack of certainty or low confidence in many instances puts more emphasis on requirements for developing and utilizing "best management practices" and for certification programs, long-term monitoring of tree growth, infestations and forest productivity to measure results and demonstrate performance.

Performance standards

A key provision in a performance or results-based code is government standards that a licensee must meet. Presently, licensee performance for establishing new forests is evaluated by a free-growing assessment at approximately eight to 10 years after harvesting. For forest health and disease management in particular the standards are a set of "free growing damage criteria". These are applied at the time of a survey and evaluation to determine the acceptability of individual trees that have or are proximate to certain types of damage caused by insects or diseases. These criteria are used for local decision-making on a site-specific basis in conjunction with several other factors or criteria that must be considered in making a decision. If it is agreed that sufficient numbers of suitable, healthy trees have been established on a site, then the licensee has fulfilled his or her responsibilities, and responsibility for future management of the young forest reverts to the government.

At present damage criteria are necessarily general in nature due to the large forest area, variety of tree species and numerous disease agents throughout the province. If these criteria are designated as contractual performance standards, they will have to be articulated in more detail in legislation and regulations with perhaps new features and certainly nicer detail for regions, districts or even specific management areas. Currently there are several slightly different versions of the damage criteria that have been posted or used in different regions, and these will have to be reconciled or harmonized to ensure reasonable, fair and equitable standards.

However, there is also continuing debate and controversy whether the evaluation using damage criteria at the free growing assessment is adequate to ensure that a new crop of trees will be healthy. The current survey procedure is designed to determine if there is sufficient stocking of desired tree species at or above a specified number of trees per hectare. Frequently, it is too expensive to determine accurately the presence or incidence of diseases such as stem rusts of pines or root diseases. Often, disease symptoms are not fully manifested or developed when trees are younger than 20 years. Occurrence of diseases such as stem rusts can be extremely variable within a small area making determination of disease incidence as a threshold for acceptability of the new crop of trees very uncertain. Also, there is a significant possibility that future management actions such as juvenile spacing can increase disease incidence and exacerbate disease impacts. Long-term disease effects cannot be evaluated solely by a free growing assessment but must be evaluated by designed stand-level trials and on-going monitoring of the health of young forests. Currently, few if any long-term monitoring activities include assessment of disease effects.

A further challenge is that criteria or standards for diseases have to be developed for uneven-aged stands, including those managed by silviculture selection systems. Recent changes in forest management, particularly the implementation of "New Forestry" practices in coastal regions by licensees, restrict harvesting to small openings and retain as many live trees as possible. Current free growing criteria were developed to apply only to young trees in clearcut areas managed for even-aged forests. Recent emphasis on harvest of much smaller cutblocks and retention of individual live trees can result in stand conditions that repress growth of young trees by increased shading, foster survival of diseased trees and create conditions for rapid spread of disease agents into young trees.

In many instances a forester or manager will have to evaluate the benefits and potential impacts of various practices and potential negative impacts on a site-specific basis to ensure that objectives are attainable, and that future productivity or sustainability is not unreasonably compromised. Although several growth projection models are available to assess tree growth, most are too general or lack sufficient details for determining disease impacts on specific sites and are usually inaccessible for most foresters.

Certification programs

One of the basic assumptions in developing a new results-based code is that certification programs will be used to ensure sustainability of forest management for specified or defined forest areas. Among several certification programs that are available and in use in BC, the program developed by the Canadian Standards Association (CSA) has been the most widely used and most detailed. Although the framework and many objectives of the certification program appear appropriate and feasible, provisions to determine and monitor disease effects appear inadequate to uncertain.

The CSA program envisions that in each area a steering group broadly representing public stakeholders, First Nations, industry, government and others will develop local indicators and objectives to measure and monitor forestry development and ensure

sustainability. The local indicators and objectives are to be based on criteria and indicators that were developed by the Council of Canadian Forest Ministers and accepted by agreement or treaty with provinces, federal government, foreign governments and international agencies. One of the prominent sections of the criteria and indicators is to maintain and enhance forest ecosystem condition and productivity. The only elements in this category are frequency and severity of major insects and diseases, but recent reports include only the area of forest attacked by prominent insects such as eastern spruce budworm, forest tent caterpillar and in BC mountain pine beetle. Even the basic criteria of frequency and severity of attack appear insufficient to measure and audit licensee performance, and ensure sustainability of forest management practices.

Development of key indicators to measure disease impacts is therefore viewed as one of the major challenges in developing a new results-based code. Successful implementation of the new code and certification programs will necessitate designing and installing long-term assessment and monitoring programs to determine disease impacts, efficacy of treatments, and effects on sustainability.

Professional reliance

Increased reliance on professional foresters to develop and apply appropriate practices to manage forest diseases raises several issues. Foresters have to search out and critically evaluate disparate data, information and opinions to determine the best practices for local situations or conditions. Although disease impacts and management practices are receiving increasing emphasis, these are often controversial for dwarf mistletoes, root diseases and stem rusts. Many foresters appear unfamiliar with details of disease organisms or their biology or recent research findings, and disease management can often be regarded as obscure or little known.

There is and will be an increasing and continuing demand for updates and short courses for professionals to keep abreast with recent developments and upgrade their background knowledge and increase their familiarity with diseases. Many of these training courses and events will have to be developed in co-operation with the professional association and universities.

Often, there seems to be a bias either for or against certain disease management practices that often appears correlated with employment. Out of approximately 3 000 professional foresters in BC approximately one-third are employed by industry, one-third as consultants and one-third by provincial or other governments. Of these, five are employed as forest pathologists by the provincial government, and one as a university professor. Approximately 10 forest pathologists are employed as research scientists by the federal government in BC, but they are not registered professional foresters. At present, there apparently are few independently employed forest pathologists.

Currently there is a need for an independent panel of forest pathology experts that a professional forester could consult with to resolve or explain differences in opinion or

viewpoint. Primary or original sources of information or data are not readily available for most professional foresters. Many data are from older out-of-print references and those from recent research often are not yet published. On any topic, there is often a wide range of opinion expressed by different scientific or professional authorities. Finally, there is also an ever-present risk of inappropriately extrapolating data from a limited research trial or another region (or country) to diverse conditions in BC. Given the wide array of forest conditions and increasing frequency and importance of disease management issues in BC, professional foresters might have to rely on consulting forest pathologists for professional advice and evaluations, but it is uncertain where or when such consultants will be available.

Best practices

The forest practice code of BC guidebooks outline management practices for dwarf mistletoes, root diseases, wound and wood decay fungi, and stem rusts of pine. Disease management recommendations are also included in stand tending and forest development plan guidebooks, and damage criteria for free growing assessments in the establishment to free growing guidebook. Other than forest practices code guidebooks, there are no authoritative sources or outlines of best forest management practices for the variety of diseases and forest conditions in BC.

Analogous to the medical profession, there likely will be a need for professional foresters to consult with and perhaps request a panel of experts to outline or recommend best forest management practices for the most common or significant diseases in the major forest ecosystems of BC. Also, because of the wide array of management issues and ecological conditions, it is likely that local resource management plans prepared by industry will have to include an analysis and description of local diseases and proposed management practices.

Developing consensus on best practices for diseases will likely be prolonged and contentious, and will be subject to periodic revisions with new research results, impact data and changes in forest management practices. These recommendations and changes will have to be transmitted to industry, professional foresters, academics and members of the public involved in local, forest-management steering committees.

Research on growth impacts

New results-based performance standards, increased reliance on professional judgement, and improved disease management practices will necessitate better and more extensive data on impact of diseases on growth of trees, productivity of stands, and effects on timber supplies. The needs for data for particular diseases have been outlined recently in detail (9, 10). There is an urgent need in BC to study effects of diseases and their treatments on tree growth under a wide range of stand and ecological conditions so that effects can be determined at the forest level when timber supplies are analyzed. I believe that there are substantial opportunities to increase forest productivity by treating extensive areas of diseased, chronically repressed forests or by applying new or more

intensive treatments to prevent disease such as using genetically resistant seed sources for planting stocks. However, with the current lack of data, many of these possibilities appear speculative.

Summary

Profound changes to forest management are underway in BC. Although the extent and final details of the changes are not yet evident, several important issues in forest health will require further substantial work to implement the announced intentions of the provincial government.

Increased responsibility for industrial licensees to develop and apply treatments and best practices for forest diseases for designated management areas will necessitate further development of standards for tolerable or acceptable levels of disease occurrence and impacts on a site-specific basis. Many of these impacts, results and standards will need to be verified and validated by long-term monitoring of infestations and tree growth. Current certification programs will have to develop criteria, monitoring and data collection to determine disease effects. Increased reliance on professional foresters will likely require an increase in professional capability in forest health, including more independent consultants or scientists who can provide expert advice, and access to models and scientifically derived data to determine impacts and practices.

Additional resources probably will be needed to develop performance standards and/or capabilities needed for improved management of forest diseases. Possibly the necessary expertise and resources will continue to be provided by the provincial government until industry, consulting foresters and professional associations can develop their own capabilities.

Even though the details of the new directions for forest management in BC are not yet fully articulated, it is evident that considerable more work is required on several facets to ensure implementation of changes in government policy and new forest management directions. Failure to address all of these anticipated tasks or shortcomings in defining new standards or required information could severely retard or detrimentally affect forest disease management in future.

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Selected Sections of the RBC Discussion Paper, with Annotations from Research Branch

(Note that Section 6.2.6. is annotated extensively and reflects the kind of comments we would make about many of the other subsections in Section 6)

2.0 Government Direction Regarding Forest Practices Legislation

- Wherever feasible, all appropriate regulatory authority will reside with the agency authorizing the non-forestry industrial activity.
- *Define "feasible" & "appropriate"*
- *We are concerned about the implied inconsistency in standards of resource development if other industries are not required to adhere to some analogous process.*

2.1 Role of Resource Agencies

The Ministry of Water, Land and Air Protection will perform an important role within the results-based regime. In a number of key areas, WLAP will be leading development of best management practices, operational expectations and standards for achievement of results, and will lead establishment of legal objectives for water quality, Ungulate Winter Range and identified wildlife. *(Presumably MoF will function in an analogous capacity with respect to the development of BMP's for values it is responsible for. BMP's must be scientifically credible, and MoF should play a leading role in their development.)* WLAP will monitor achievement of results, and will monitor and report on indicators of the state of the environment, and will be responsible for compliance and enforcement of environmental standards.

3.0 Legal Framework

Determining whether or not results have been achieved and whether or not due diligence was exercised will be very difficult in view of some of the poorly defined terminology and results in this document.

The burden of proof tends to rest on the agency that develops the legislation e.g. Fisheries. We are concerned about the ultimate enforceability and time frames associated with the inevitable reliance on case law that will occur initially, in light of the variety of opinions possible on many technical aspects articulated in this discussion paper. In addition, some results may not be measurable for many years. Significant delays will increase the likelihood of serious resource degradation.

Regarding "legal requirement for professional signoff"

Do professional organizations have all the key components in place to ensure professional accountability (e.g. continuing education, discipline, resources, simplified complaint process, etc.)? What might the implications be if the professional organisations are unable to perform as required? Is there a contingency plan? If it were possible, orchestration of a transition period would be desirable in order to enable professional organizations to learn and adapt to the new environment.

4.0 Landscape Level Zones and Objectives

Based on the discussion in Section 4.0 it appears that MSRM-derived zones and objectives will be "legally binding" but interim zones and objectives will not. How are will interim zones and objectives be enforced?

5.1 Who Can Submit a Resource Development Permit?

Other industries such as oil and gas, or mining exploration and land development interests will not be required to submit an RDP.

We are concerned about the implied inconsistency in standards of resource development if other industries are not required to submit an RDP or adhere to some analogous process.

5.3 Resource Development Permit Tests

4. For community watersheds and watersheds with significant downstream fisheries values, a test where the District Manager must be satisfied that the licensee has identified terrain hazards in the watershed, and properly located forest development units relative to these hazards. In addition, the District

Manager must be satisfied that the licensee has identified cumulative hydrological impacts and hazards in these types of watersheds, and has proposed forest development units that will not result in further impacts nor increase risk to channel integrity, water quality, water quantity, or timing of flow.

- *For clarity, should add, "This is the role that Watershed Assessment Procedure's have historically fulfilled." Such a statement would not stifle innovation.*
- *Are the existing Watershed Assessment Committees part of Test #3, and equivalent to public consultation, or are they simply a component of a WAP-type analysis to be considered solely under Test 4?*
- *It is not clear how cumulative impacts associated with multiple licensees operating in the same watershed would be identified and evaluated by the DM. How would data collection and sharing between licensees be managed towards evaluating impacts over the watershed as a whole? What is MSRM's role in such a scenario?*

5.4 Amendments in the RDP Process

It is not clear what the timeframe is for evaluation of the RDP by the statutory decision maker – are there guidelines for this process?

6.0 Results-based Management Regimes for Specific Forest and Environmental Values

6.1 Development of Results-based Management Regimes by Value

3. An enforceable **result** was then developed. Results will be a key component of legislation. Licensees who fail to deliver these results will be subject to compliance and enforcement actions. The nature of compliance and enforcement activity will be complex, as it will be carried out against specified outcomes, and will require employment of resource specialists to determine the appropriate level of diligence that should have applied given the circumstances of each occurrence.

4. **Rules** were then developed to support results that were not clearly measurable or to provide further controls or protections beyond results if needed to assert the public interest.

Point 4 suggests that some results might not be enforceable because they will not be measurable (it would not be possible to enforce an

unmeasurable result). Therefore, the wording in point 3 should be adjusted to reflect this – e.g. “Enforceable results were developed whenever possible.”

6.2 Description of Results-based Management Regimes By Value

6.2.1 Landscape Level Biodiversity

Explain why there are no “Results” associated with biodiversity values. How is this a part of the Results Based Code?

Exemption:

The District Manager will be able to exempt an RDP from having to meet interim old forest objectives in the following circumstances:

- when necessary to address a forest health factor;
- when necessary for road development;
- where no reasonable and cost-effective alternative exists; or,
- when necessary to achieve timber supply objectives as per existing code impact policy.

Is the timber supply impact analysis up-to-date?

B. Representation of Other Seral Stages

Cross-reference: See RDP Approval Test #2 under Section 5.3.

Prior to issuing an RDP, the District Manager must be satisfied that the RDP retains sufficient other seral representation to meet land use objectives. Test considerations for other seral objectives will be similar to those for old forest and there will be no interim objectives.

Test considerations for old growth are not identified as such in the document, so this statement is difficult to understand

D. Temporal and Spatial Distribution of Cut-blocks

We are concerned by the relatively high level of detail devoted to the spatial and temporal distribution of cutblocks, both in the discussion paper and Companion Document 1, relative to the other landscape level biodiversity sub-values presumably because large cutblocks are “natural”. This may be true under some circumstances but opening size is only one small component of the entire concept of natural disturbance emulation. We need to ensure that our approach to conservation of biodiversity is balanced.

6.2.3 Coarse Woody Debris

Goal Statement:

All harvested sites will retain ecologically appropriate coarse woody debris in a quantity, quality (size, species, decay class) and distribution typical of natural forest conditions, considering other resource management goal statements.

Define "ecologically appropriate".

6.2.5 Forest Health

Goal Statement:

Forest health management will protect provincial forest and range resources and will maintain productivity by minimizing losses and mitigating future risks to provincial forest and range resources from forest health factors and invasive plants.

- *Define "forest health factors" - do they include factors such as soil nutrient status, fungal symbionts, fertilization, elevated CO₂ levels, etc.?*
- *The wording does not distinguish between pest management and broader forest health considerations. As a result the wording is confusing e.g. result #3 - how would NDT4 ecosystems be managed to achieve this result with respect to forest in-growth? Managing ecosystems to achieve biodiversity objectives might be at odds with "minimizing losses" i.e. natural disturbance patterns may be a result of "forest health factors" - controlling forest health factors to "minimize losses" is likely to interfere with natural disturbance processes.*
- *It is not realistic to refer to minimizing losses. Maintaining productivity means that endemic losses are ok. Use "managing losses" rather than minimizing.*
- *To what extent does this pertain to range licensees; should similar wording be in 6.4?*

6.2.6 Roads, Stream Crossings and Access Management

NOTE: We have used this section (i.e. Section 6.2.6) to illustrate a number of our concerns with the document as a whole. Our comments are typical of comments we would make about many of the other sections.

Main General Comments (numbered comments that follow are referenced in subsequent specific comments in the text of this section):

- 1) Document does not consider time as an important factor, one that compromises the results-based objectives. Example, a landslide that originates off a logging road that was built while the RDP was in effect but is now post-RDP, will generate a significant cost that would likely have to be covered by the Crown.*
- 2) Many values do not have definable, or measurable, results. Example, how do you measure "cumulative hydrological effects", "stream channel integrity" or meet "water quality objectives", given the natural variability characteristic of a province with diverse and complex natural disturbance patterns?*
- 3) Many poorly defined terms. The devil will be in the details. Example, the meaning of "downstream sensitive fish habitats" will vary dramatically by individual, and the interpretation will have huge economic and environmental consequences.*
- 4) It is not clear which of the three interpretations of "due diligence" is favoured and under which Compliance and Enforcement will operate.*

Goal Statement:

Roads (3) that are constructed, maintained, or deactivated on the provincial forest land base will be stable (3), safe for users, and will achieve results and objectives stated for forest and environmental values.

Results:

1. Construction and maintenance and deactivation of roads, pioneer or tote roads, landings, bridges and any other form of watercourse crossing will result in roads, drainage systems and crossings that are structurally sound, stable, safe for users, and will, where relevant:
 - prevent slope failures and landslides (*slope failures are landslides*), and minimize the introduction of silt (3 - *sediment?*) to watercourses (3):(1)
 - maintain water quality;(1)
 - maintain stream channel integrity (2,3):(1)
 - maintain surface drainage patterns; (1)
 - conserve wildlife habitat including riparian vegetation; (1)

- prevent harmful (2,3) alteration, damage or destruction of fish, fish habitat or fish passage; (1) and,
 - prevent degradation (2,3) of water quality at the water supply intake in a community watershed. (1)
2. Deactivation of a road will result in:
- limiting access on the road to motor vehicle traffic consistent with legal objectives;
 - restoration (*inconsistent - can't disturb in the first place - "maintain drainage patterns" - above*) of natural drainage patterns;
 - removal of bridge and log culvert superstructures;
 - removal of bridge or log substructures if the failure of a bridge or log culvert substructure would affect downstream values;
 - removal of all stream culverts and restoration of fish passage and protection of fish habitat; and,
 - re-establishment of ecologically suitable vegetation that will protect soil and, where applicable, provide forage and control invasive plants.

The licensee is whoever is authorized to construct or deactivate a road, landing or crossing, or is required to maintain it.

Rules:

1. Drainage systems (3) must be functional during (1) construction of a road.
2. Road construction works must be outside a riparian management area, except at stream crossings, unless there are no practical options or there is a higher risk to resources (*unclear*).
3. Equipment crossings of a stream during road construction must be at one location only.
4. The clearing width for a road, and width of the finished road prism, must not exceed that required for user safety and operational requirements (*as defined by/how... ?*).
5. The clearing width for a road at stream crossings cannot be widened to accommodate bridge or culvert material storage sites, landings and equipment turn around sites.
6. Exposed soil that will support vegetation (*as determined by/how... ?*) must be re-vegetated (*when?*), to provide for soil erosion protection and control of invasive plants.
7. Fuel, lubricants and servicing fluids must be controlled or contained.
8. ~~Rock that is from an~~ **Acid**-generating rock ~~formation~~ must not be used for road surfacing and ballasting unless acid generation is mitigated (3).
9. Rock blasting and handling must not damage resources (3) adjacent to the worksite (3).

10. A person who constructs and maintains a road must construct bridges, stream culverts and their approaches that will pass the peak flows set out in the following table (*re: following table, see comments 1, 2, 3*):

Minimum design peak flow	
All stream culverts	100-year return period
Permanent bridges	100-year return period
Temporary bridges	50-year return period

Except that:

- a. A stream culvert may be constructed at a crossing to meet the expected flow during the period of use if:
 - the stream is not a fish stream (*defined how? - at the site or downstream?*)(3);
 - the installation and use will be in a period of low stream flows(*coast and interior?*);
 - there will be no future crossings in this location; and,
 - the culvert is removed before the period of high flows, and
- b. A bridge may be constructed at a crossing to meet the expected flow during the period of use if the pieces at risk (3)are removed before the periods of high flows.

11. Downloaded bridge ratings signs must be installed on all bridge approaches, if the bridge cannot support the design vehicle load for the road.
12. The licensee must duly notify all users of potential risks to public safety resulting from their activities and will provide appropriate notice to water purveyors of road construction or deactivation works in a community watershed (4).
13. Bridge design and fabrication must conform to the Canadian Standards Association, Design of Highway Bridges, CAN/CSA-S6, and the Canadian Foundation Engineering Manual.
14. The licensee must inspect steel and concrete bridges (*decking?*) at least once every three years, and log bridges at least once every two years.(4)

Cross reference: See RDP Approval Test #2 under Section 5.3

Prior to issuing an RDP, the District Manager must be satisfied that an RDP will meet land use zones and objectives set by MSRM for forest road access management.

- These objectives will be set for landscape scale areas by MSRM where access on forest roads represents a hazard to forest and environmental resources, or where such access must be managed to meet land use objectives.

Statutory powers:

1. SDMs may issue an order compelling a licensee to do certain things (3) to address risks of imminent and catastrophic impact (3) on public health, safety or the environment. Failure to comply with the order could result in enforcement action. **(4)**
2. SDMs will have authority to determine if structures have been adequately designed with respect to public safety hazards, or risks to the environment.

Information Requirement:

Inspection records, and materials fabrication and construction data, will be maintained for the life plus one year of any bridge structure, and will be submitted to successive licensees.

6.2.7 Silviculture

Results:

- 2) Licensees must achieve government's land use objectives for **timber and non-timber values** (*Is this not an explicit requirement throughout the document?*).

Rules:

5. The maximum density for any block will be 10,000 (?) stems per hectare unless the regional manager approves a different standard considering **economic**, ecological, social and environmental objectives.

Regarding 10,000 stems per hectare, we would prefer the following:

"The maximum density for any block will be based on an analysis of volume, value and economic benefits unless the regional manager approves a different standard considering ecological, social and environmental objectives."

The specification of 10,000 trees/ha is inconsistent with the spirit of the code (i.e., minimize regulations). Decision support systems are available to determine a density limit that reflects the species, site, establishment density, spacing costs, volume, logging and manufacturing costs, product value, economic return etc. This information will be different for each operator.

Our version also reflects the intent of the Ministry of Forests Act in relation to the economic and financial interests of the government as paraphrased below.

4 (a) encourage maximum productivity ...

(b) manage ... having regard to the immediate and long term economic and social benefits ...

(e) assert the financial interest of the government ...

Information Requirements:

The licensee must submit each year to the District Manager on or before May 31, a report describing the silviculture treatments completed in the area for the preceding year ending March 31 including:

- a summary of the silviculture activities carried out by the licensee, including the regeneration method, year of establishment, estimated species composition at establishment, and estimated density at establishment.

Should include the site series. Otherwise there is no way to evaluate whether the result number 1 above, i.e. to "establish and maintain a healthy, well-stocked and free-growing stand ... of commercially valuable trees that are ecologically suitable to each site" is attained.

6.2.8 Gene Resources

Goal Statement:

The objective of results-based management of **forest** gene resources is to **maintain and enhance** a) genetic diversity and b) productivity of ecologically, economically, and socially important forest species. This is accomplished by conserving and developing forest genetic resources to ensure the adaptation capacity of populations (*add a definition for this in terms of survival and productivity traits?*) to **current and future environmental conditions.**

Results:

1. The licensee must sustain the productive capacity and value of timber and non-timber resources across the landscape through the use of best genetic material (**rated for growth potential and/or pest resistance**) available at time of seedlot [*should include vegetative material in the definition of "seed" from now on*] selection.

How is productive capacity defined for non-timber resources?

How can productive capacity be measured -- what is the baseline?

How is value defined? Is it economic, social, ecological, or all three? Who determines the baseline value? Economic value of resources can decrease over time as society's needs change. How can sustaining value be enforced?

2. The licensee must sustain the productive capacity and value of timber and non-timber resources across the landscape through the use of best genetic

material available at time of seedlot [*should include vegetative material in the definition of "seed" from now on*] selection.

3. The licensee must ensure genetic diversity will be conserved such that genetic adaptation capability is maintained in response to environmental factors and forest management over time, including regeneration genetically adapted to the site. [*this really isn't up to the licensee.... we set the standards on minimum genetic diversity in commercial seedlots.. they just have to plant seedlots that meet them, which won't be registered if they don't meet the standard*]
4. The licensee must manage gene resources such that acceptable levels of genetic diversity, within and among species, are conserved. [the licensees, as above, do not really know about the conservation strategies in place for the species, so this is confusing]

Rules:

1. The licensee must use only registered seed and vegetative lots for Crown land reforestation.
2. The licensee must keep a record of the registration numbers of the seed and vegetative lots used and the locations where they are planted.
3. A person involved in processing and/or disposition of cones, seeds and vegetative material collected from Crown land (or licensed orchards on private land) must be in possession of a Seed and Vegetative Material Dealers Licence.[*no t sure why, as it will have to meet the requirements of seedlot registration in the end*]
4. The licensee must deploy stand and landscape level seed and vegetative material according to the conditions of registration (**including adherence to seed transfer guidelines**) and land use objectives.
5. A person must not collect cones, seed or vegetative material unless in possession of a Cone, Seed and Vegetative Material Collection Permit. [*not sure why this is necessary anymore, for the same reasons as in 3*]
6. A licensee who is required to re-establish a stand of trees must store tree seed with the MOF.

Statutory Powers:

1. The Chief Forester, or a designated authority, will have the ability to prevent or limit the removal of cones, seed or vegetative material from British Columbia.
2. The Chief Forester, or a designated authority, will have authority to order licensees to implement appropriate gene resource management measures.
3. The Chief Forester, or a designated authority, will have the ability to specify identified gene resources and require their storage with the MOF.[*this could be combined with 2, or deleted as they mean essentially the same thing*]

6.2.11 Community Watersheds/Watersheds With Significant Downstream Fisheries Values

Note:

- Community watersheds will be designated by MSRM.
- The Regional Manager, Environmental Stewardship (WLAP) will designate watersheds with significant downstream fisheries values.

We are concerned that this could be all-inclusive and with how it will be applied. Most streams in B.C. have either fisheries values in situ, downstream, or are tributaries to streams with fisheries values. The definition of "significant" is critical.

6.4.1 Some Specifics for Range Management

1. Range practices must not result in livestock use in a riparian area of a community watershed if the use would result in **excessive** fecal deposits, **excessive** trampling of vegetation, **excessive** deposit of sediments or **excessive** exposure of mineral soil.

Where "excessive" is defined as:

- *levels that would result in deterioration toward a non-functional condition of riparian areas,*
- *levels that cause the water to fail to meet the water quality objectives set by WLAP*
- *levels that fail to achieve the results defined in the Riparian Management section*

Note some overlap with the next rule in Range Management.

Comments on the Results Based Code Discussion Paper
Provided by
Ministry of Forests' Research Branch

- 1) The document should have a more comprehensive background section that does not assume a working knowledge of the existing Code and its evolution. In particular, some discussion and explanation is warranted related to the selection of "values", the risk management framework, and compliance and enforcement regime, especially in the context of the existing code and its evolution. The application of results and rules is inconsistent throughout the document, and the level of detail that each value is dealt with is uneven. There are likely very valid reasons for this, which should be explained, otherwise it may appear to have been inadvertent. Also, it is important to point out that our knowledge and understanding in many areas is still evolving – hence the use of best available information is generally required, while at the same time improving our knowledge base by monitoring, evaluating, managing adaptively and conducting research.
- 2) In addition to relying on clearly articulated, measurable results, the success of the results-based code will also hinge on a long-term, strong government commitment to both effective compliance and enforcement and to a comprehensive, responsive and ideally, proactive, code evaluation program. It is imperative that, with a "results-based policy framework", we determine first that compliance occurs and subsequently that desired results ensue. If either C&E or code evaluation activities are lacking or inadequate, the "results-based code" will become difficult to defend and there may be insufficient information (feedback) with which to modify the Code to achieve sustainable forest management.
- 3) Definitions are lacking for many technical, general, goal-, results-, and rules-related terms throughout the document making interpretation difficult or impossible.
Examples:
 - 6.2.1. (C) - "...features contributing to landscape connectivity will be conserved."
 - 6.2.1. (D) - "...incorporates the characteristics of natural disturbance..."
 - 6.2.2 - "Wildlife trees will be retained...in a distribution that reflects natural patterns."
 - 6.2.3 - "...ecologically appropriate coarse woody debris..."
 - 6.2.5 - "forest health factors"
 - 6.2.6 - "...no practical options..."
 - "...exposed soil that will support vegetation..."
 - "...must not damage resources adjacent to the worksite..."

- "...if...there is a likelihood that sediment will enter streams."
- 6.2.7 - "...protect soil properties..."
- "...avoidance of soil erosion..."
- 6.2.8 "...best genetic material
- "...genetic adaptation capability"
- "...acceptable levels of genetic diversity"
- 6.2.12 - "Forest and range practices will result in: "...conservation of the...productivity of...ecosystem connectivity."
- "...vegetative diversity..."

It is essential that these terms and others in the document be clearly defined. A glossary appended to the document, identifying and defining such terms would be very useful.

4) Section 4.0 states that "spatially explicit land use zones and objectives are integral to the effective working of a results-based regime" and yet there is no description of what the zones might be. It is unclear how the values will be related to zones. Some of the values could be zones themselves (e.g. VQOs) others could not (e.g. all Landscape Level Biodiversity). Further, Section 4.0 asserts that MSRM will not meet the target date set for code implementation. It indicates that there are a number of significant obstacles to overcome before results-based landscape level zones and objectives can be put in place (e.g. most LRMP statements are not currently suitable to support implementation of the results-based regime). In the absence of MSRM-derived zones/objectives, proxy or interim ones are to be established by the SDM - zones and objectives that are designed to "address unacceptable risks to certain values...". The process whereby interim zones and objectives are to be established is not defined. This raises many questions:

- What does it mean to say, and how might the SDM ensure that, "unacceptable risks to certain values" are "addressed".
- Will/should there be public consultation in setting interim zones and objectives? If so, how should that occur? Would the resultant timelines be reasonable or acceptable in the context of industry expectations for RDP issuance?
- The discussion document contrasts interim zones and objectives with "legal" zones and objectives (i.e. those to be set by MSRM), thus implying that the interim zones and objectives will not be legal. What exactly is the legal status of interim zones and objectives?
- Interim zones and objectives should ideally be consistent with future zones and objectives to be established by MSRM - but this is by no means a certainty. What are the implications of establishing interim zones and objectives that might ultimately conflict with zones and objectives legally established by MSRM at a later date?

- 5) The discussion document provides no guidance regarding the information required in the evidentiary base supporting an RDP, except to say that the SDM must be satisfied that it is commensurate with the degree of risk to the values or interests at stake.
 - How is the statutory decision-maker going to decide if the evidentiary proof is sufficient? Any standard procedures endorsed by government agencies for determining degree of risk should be alluded to in the document. If standard endorsed procedures do not exist, then how will consistency of interpretation and application across the province be achieved?
 - The companion document indicates that the evidentiary base for statutory decision making could be quite demanding and complex. What expertise will the SDM need in order to evaluate the evidentiary base? The greater the breadth of expertise required, and the more *ad hoc* the risk assessment procedure, the lengthier the evaluation process is likely to be.
- 6) It is not clear in the document exactly how licensee performance will be judged. Would strict adherence to the rules alleviate a licensee's obligation to achieve results? Or will the licensee be accountable for achieving the specified results irrespective of whether or not the rules were adhered to?
- 7) The concept of natural range of variability (NRV) is commonly used in the document to describe desired end results. However, there are some practical difficulties with it that make it difficult or impossible to measure, depending on the value in question. First of all, the NRV can vary significantly depending on geographic and time scales. For example, the NRV in landslide occurrence in a 1000 ha watershed over 10 years will likely be significantly different for the same watershed over 1000 years, and even more-so for a 10,000 ha watershed over 1000 years.

Secondly, evaluation of most of the results outlined in the discussion document requires establishment of baseline information against which to compare changes due to management activities. This is particularly true with respect to results that refer to "natural range of variability" (NRV), or "natural patterns". For many or most of the values to which the concept of NRV is applied in the document, an adequate baseline does not exist. In some cases it may be possible to make inferences (e.g. fire return intervals), but in many others, this will not be the case. For some values (e.g. water quality), useful inferences cannot be made, and baseline information is geographically specific, and so must be collected for many areas within the province, for a number of years. Our concern is that, while the concept of NRV is valuable and valid, it may be difficult or impossible to evaluate. In such instances, results expressed in other more measurable terms should be considered.

Alternatively, temporal and spatial scales for establishing NRV should be prescribed for relevant values.

- 8) Roles and responsibilities with respect to information collection, management and dissemination are not clearly articulated. MSRM has a strong information management mandate, but the District Manager is the intended recipient of much of the information to be collected as prescribed in the discussion document (e.g. wildlife trees; forest health; silviculture activities; stand tending activities; gene resources). The disposition of other information to be collected is less clear (e.g. road-related information; soil conservation information). There will be a need to ensure that data are collected and delivered according to protocols to ensure consistency and comparability. A clear discussion about the flow of data and information is required, including expected information requirements (e.g. licensees, District Managers), and responsibilities for information management and provision (e.g. MSRM). Where more than one licensee is operating in a watershed, it is not clear how information will be collected and analysed, nor who will do so, in order to enable an assessment of cumulative impacts.
- 9) The entire document is generally weak on range practices. The "Result" for range management (Section 6.4.1) is "Range use practices will not result in deterioration of forage resource quantity and quality". This result statement may provide reasonable protection of the range resource but it is difficult to envision sufficient government resources being available to achieve this. If the result is not measurable in a practical manner, then it is not auditable nor enforceable.

Alternative approaches to evaluating compliance, such as checking seasonal forage use or grazing schedules, will provide an indication of potential deterioration of forage quantity and quality.

Note that some accounting for the recovery of existing degraded rangelands is required. Setting "desired plant community" objectives will provide a means to protect biodiversity values and account for the recovery of rangelands.

Summary of Regional MSRM comments on the RBC

(I have placed the comments in the same structure as the website's discussion forum)

2.0 Government Direction Regarding Forest Practices Legislation

Role of resource agencies

There is no mention of a monitoring role for MSRM. This is necessary especially around seral monitoring, temporal and spatial distribution of cut blocks etc. There is also a need for information updating or reporting and referral from other Resource Agencies and or proponents to MSRM.

Identify government expectations for agency roles in developing both interim and long-term resource value objectives.

3.0 Legal Framework

If landscape level location and controls are to be a keystone to this policy then there will be a need to complete a considerable amount of work in preparing objectives or even interim objectives. This will need to be a priority for SRM if interim objectives are to be ready by December. This is in contrast to the SRM Planning – A Landscape-level Strategy for Resource Management paper which indicates the following for setting priorities for SRM planning:

“The Regional Director, MSRM, will decide to add chapters to the SRM plan on specific resource values, development and conservation based on the following criteria:

The resource value offers a clear, substantial economic opportunity that SRM Planning will directly help to promote or, promote indirectly, by resolving existing or potential conflicts between users

Partners are identified and agree to be involved and contribute to the planning process

Where none of the above occur, government directs that planning must be carried out to deal with a serious issue such as a threat to public health or the environment

The availability of resource information, analysis and relevant existing planning direction

Need to accommodate First Nations interests”

No where in this document does it indicate that establishing the RBC landscape level land use zones and associated objectives is a priority.

It will take considerable effort to design land use objectives (even interim objectives) that are enforceable.

Recommendations

- Government reviews what is required to establish meaningful and measurable objectives and ensure that there is adequate time to get interim objectives in place prior to implementing the new RBC. This will need to be done quickly since this is a cornerstone of the RBC implementation.
- Alternatively government could review the situation and design a transition strategy for implementing objectives

- Another alternative would be to download the development of interim objectives to licensees with SRM being responsible for approving these interim objectives. Objectives to come into play as RDP's are developed.

4.0 Landscape Level Zones and Objectives

Will interim objectives provide sufficient management of the resource? How will we know if the interim objectives are working?

Will forest practices that result from Higher level plans be binding on the mineral industry? This seems contradictory to the two-zone model.

If MSRM is the agency responsible for leading strategic planning to balance social, economic and environmental interests in land use would it make more sense to have MSRM responsible for legal establishment of water quality, ungulate winter range, identified wildlife objectives and other objectives.

It is not clear what the relationship between land use objectives and goal statements is. Who would be responsible for developing goal statements and associated results and rules?

LRMPs

The link between LRMP and the control they will have on location and intensity needs to be more fully explained.

The paper states there is an urgent need to locate and interpret LRMP products at the landscape level. There is a perception among many members of the public that this means government is going back to open up LRMPs and make changes. Suggest the wording should be that we are taking LRMPs and applying them at the landscape level this is what we have always done.

It is assumed that all standards in the RBC can be surpassed through implementation of an LRMP (e.g. retention of old forests, seral stage distribution, connectivity etc.)

Comments

SRM likely won't have the staff or budget to make the transition to legal land use zones and objectives "as brief as possible". SRM will also be branching out into other areas of planning so some priorities need to be established.

In order to ensure that landscape use zones and objectives are clearly articulated, quantitative and spatially explicit will require well-trained staff and sufficient budget to completed required work.

If SRM develops objectives that licensees either don't need to consider or only consider, as is being proposed in the document "SRMP A Landscape-level Strategy for Resource Development", will these objectives provide enough control to ensure that required results are achieved. If licensees don't even need to consider objectives is there any point in even establishing objectives.

Recommendations

If SRM direction is to develop plans that either need to be considered or not considered at all then the plans may as well be developed by the licensee as they will only be implementing what they have to anyhow.

SRM plans should also provide a risk assessment of the various values. The amount of evidentiary information gathered by licensees and consideration that is given to approval of a RDP could be based on the risks that have been identified up-front.

- Using resource mapping a risk rating system could be developed. The risk rating system could be based on a review of the likelihood of a negative impact happening and the significance of a negative event if things did go wrong.
- This type of system would also be useful as it could also be used by Compliance and Enforcement people to help in prioritizing inspections.

5.0 The Resource Development Permit

Page 11 paragraph 3 &4, the last sentence reads “ However , as soon as development has concluded, the Licensee/TSP must release its option over the remainder of the unit.”

Does this mean that despite the fact that an RDP may be for a 5 year time horizon, RDP units cease to exist once the development has been completed?

In one place in this chapter it mentions being consistent with higher-level plan objectives and in another it mentions meeting objectives. There are differences between being consistent with objectives and meeting them.

Does consistent have the same meaning as it did under the Forest Practices Code e.g. Approval of operational matter does not materially conflict with HLP objective.

The DM only be required to ensure that operational plans are consistent with higher-level plan objectives rather than to meet them.

Formally define what consistent means.

5.1 Who can submit a RDP

5.2 Content of the RDP

The general nature of the map requirements for RDP will not permit sufficient consultation to be carried out by licensee with stakeholders, particularly first nations. Not only are the requirements for block and road locations too general, much important map information is currently described as optional.

The RDP will not provide the public/stakeholders an opportunity to review the specific blocks proposed by the licensee. This could create the potential for misunderstanding/conflict from the public/stakeholders with the DM and licensee as a result of this broad scale of approval.

5.3 RDP tests

Consistency required with LRMPs? Even parts that are not Higher Level Plan/Legal Objectives?

Concerned that the approval of a RDP will be too broad based with large units and approval for 1 to 5 years. The DM may sometimes not have enough information to refuse approval of an RDP, and that more information on other forest resource values will become available during the 1 to 5 year period. The concern is this will create a situation where a DM will have to spend a lot of time addressing challenges to approvals. DMs in some Districts change on a frequent basis, and hence will be less than 100% familiar with their district and the public/stakeholders and that this may not be adequately covered in the rationales for approvals.

The District Manager will be placed in an impossible situation with respect to deciding whether licensees have "adequately consulted" with the public.

5.4 Amendments not applicable in the RDP process

How can you have timely adaptive management to new information or events, such as forest health, fire or other new information effecting the overall balance of targets and landscape objectives, without RDP amendments?

6.0 Results Based (RB) management Regimes for specific Forest and Environmental values

How do existing values not included in the value list get added to the Results-based Management Regime e.g. Grizzly Bear, Caribou, recreation etc.?

6.1 Development of RB management Regimes by Value

page 16, #2. This paragraph is unclear - does it mean that resource development permit tests are only required if an objective could be compromised by a development proposal? I thought the tests have to be applied for all RDP proposals.

6.2 Description of RB Management Regimes by Value

6.2.01 Landscape Level Biodiversity

Default maximum cutblock size for Prince Rupert Region is 60 Ha but Kamloops is 40 Ha however natural disturbance in Kamloops is larger than in the Prince Rupert Region this seems contradictory.

Page 17, 6.2.1 A and Page 19, Retention of Old Forest and Temporal and Spatial Distribution of Cut blocks:

There are a number of opportunities for MOF to provide exemptions from objectives in particular for forest health control, access etc. Without an MSRM monitoring role or referral process this could make it difficult for accessing overall balance and tallying of seral status. Seral information will need to be updated on a regular basis to continue the improvement and long term management of Old Forest and seral targets on a landscape level.

The temporal and spatial distribution objectives for cutblock openings are insufficient without the addition of patch size retention objectives for mature and old forest.

Remaining patches of older forest will be fragmented in the short term by specifying only patch size objectives for cutblocks.

6.2.02 Wildlife Trees

6.02.03 Coarse Woody Debris

6.2.04 Management of Visual Quality

Section 4 seems to hand over the mandate for the creation of the objectives to MSRM, however appendix 1 indicates that the MOF DM, establishes objectives for visual quality (VQOs) While the setting of some objectives may be of greater concern than others, the result of this division of authority is that you have a process being run by the mandated agency (MSRM) which could be compromised by another. This is contrary to the reasons that MSRM was created, it defeats the planning efficiencies we have gained, and it compromises MSRM's ability to carry out its mandate. This is not to suggest that MSRM draft objectives in isolation, without referral, consultation or the use of the best available science and practices.

Authority over VQOs should be with MSRM not the DM. The rationale for this is that VQOs are primarily recreation and tourism resource objectives, and the DM no longer has recreation in his mandate. In addition, VQOs are established at a strategic planning level rather than an operational planning level.

6.2.05 Forest Health

Can a DM force a licensee to harvest a forest health problem (e.g. Mountain Pine Beetle (MPB)) that is outside the approved RDP but within the Licensees operating area(s)?

In an area with no licensee operating areas and no RDP approved how would a MPB outbreak be addressed?

Forest Health: licensees are obliged to treat even **endemic** levels of pests. At endemic levels the forest is not threatened. Further, biodiversity values are linked to some endemic presence of organisms like MPB and FBB (eg. snag creation).

6.2.06 Roads, Stream Crossings, and Access Management

How will SRM have to establish interim objectives for access management? Does SRM have the resources necessary to identify situations where forest roads represent a hazard to forest and environmental values?

If MSRM sets objectives for access management who will complete the compliance and enforcement on the objectives. SRM should not have to take an enforcement role. SRM's role in access management should be fleshed out more as access management has some serious risks associated with it. If these risks are not adequately addressed then government could be opened up to significant liability. If SRM is going to be responsible for assessing slope stability associated with roads for example then SRM will need to acquire qualified staff to access these types of risk.

6.2.07 Silviculture

6.2.08 Gene Resources

6.2.09 Soil Conservation

6.2.10 Terrain Hazzard Management

6.2.11 Community Watersheds/Watersheds with Significant downstream Fisheries Values

Should SRM be responsible for designating significant downstream values as the implementation of these streams can have economic implications?

6.2.12 Riparian Management

Page 37 #1a "felling may occure in a riparian zone...if the undertaking is for recreation facility management by government." Is not government getting out of recreation facility management?

6.2.13 Ungulate Winter Range

Should SRM be responsible for establishing interim ungulate winter range objectives? It would seem appropriate if we want things to be balanced.

6.2.14 Identified Wildlife

Will SRM be responsible for entering into agreements with licensees regarding using licensee information to make wildlife objectives?

What is SRM's role in developing Wildlife Habitat Areas?

6.2.15 Resource Features

6.2.16 Cultural Heritage Resources

What is SRM's role in identifying and planning for other resource features and cultural heritage resources?

6.2.17 Lakeshore Management

Section 4 seems to hand over the mandate for the creation of the objectives to MSRM, however appendix 1 indicates that the MOF DM, establishes objectives for 200m lakeshore zones (for forest cover retention, recreation facilities and road mangement). While the setting of some objectives may be of greater concern than others, the result of this division of authority is that you have a process being run by the mandated agency (MSRM) which could be compromised by another. This is contrary to the reasons that MSRM was created, it defeats the planning efficiencies we have gained, and it compromises MSRM's ability to carry out its mandate. This is not to suggest that MSRM draft objectives in isolation, without referral, consultation or the use of the best available science and practices.

Authority over lakeshore management objectives should be with MSRM not the DM. The rationale for this is that lakeshore management relates to recreation, tourism, fisheries and other non-timber resource values.

6.3 RB Regime for Woodlot Licenses

6.4 The management Regime for Range

There appear to be no standards for Range other than preventing further degradation of current condition. There are a disproportionate number of red and blue listed species located in grassland habitats yet this resource is not given the same consideration as forests.

6.5 The Regime for Fire Management

7.0 The Compliance and Enforcement Regime

page 45, the entire Section 7 re: Compliance and Enforcement. It read like a discussion paper which is what it is. It is an interesting legal read, but it is not clear what the final decision/direction is going to be.

With predicted cost savings for proponents, has there been any consideration for direct impacts to penalties in particular for the elimination or deterrent of unjust enrichment potential? Who decides penalties and what deserves a black mark against a company or not? Who is going to decide who is on the good list or who is on the bad list? Will there be any public input or consultation on the types and values of penalties before they occur. Is there an evaluation and CI process going on now for determination of penalties and their administration?

Would it be more effective to have all Compliance and Enforcement staff residing in the same organization? The benefits would be that staff could be prioritized to work on the highest priorities, greater ability to specialize with more people and licensees would only have to deal with one set of people. Consideration should be given to just having one enforcement agency.

SRM not have a compliance and enforcement role.

Where objectives are developed that require compliance and enforcement actions, the objective should specify a lead agency for C&E.

7.1 The Role of Due Diligence and Absolute Liability

7.2 Other Proposed Changes to the Compliance and Enforcement Regime

8.0 The Non-Legislated Realm of the RBC

9.0 The Forest Practices Board (FPB)

Will the Forest Practices Board be reviewing Higher Level Plans with the Results Based Code?

Appendix 1 Land Use Zones and Objectives for the RB Forest and Range Practices

Appendix 2 Draft of Legislation for Resource Development Permit Content and Approval Tests

The District Manager needs some guidance on how to determine if proposed forest development meets objectives for land use zones. Does SRM have any role in this process? Will SRM staff have to provide support to the DM's in their review of Resource Development Plans?

SRM should not be involved in actively reviewing RDP's but should be available to the District Manager to provide advice regarding land use objectives where required.

Appendix 3 Draft of Legislation for the Terrain Management Regime

Appendix 4 Draft of Legislation for the Identified Wildlife Management Regime

If this information is enacted it should include clauses indicating what acceptable impacts are.

To ensure that social, environmental and economic values are balanced it would seem to be more appropriate for SRM to take the lead role in Identified Wildlife Management. The legislation seems to be pretty involved and process oriented and may not meet the test for establishing new legislation.

Rewrite legislation so that impacts are specified and that the amount of process is reduced.

Companion Documents

Backgrounder

Page 1, 2nd column, first sentence talks about continuous improvement but it is not clear to me what this means or how it is implemented. Does it mean that all objectives are interim until revised?

Companion Document 1 Comparison of Value Management Regimes

page 1, 2nd column, b, RBC. "Objectives for mature seral..." Am I reading this wrong? What about objectives for old and early seral?

The introduction to this document emphasizes the point that risks to forest resources will be increased if explicit landscape level zones and objectives are not available to support the proposed results-based regime.

Will a methodology be developed that can be used to demonstrate that old-growth targets have been achieved. I can foresee that without this there could be a difference of opinion on what this means which could lead to slow downs in approvals.

Ensure that resources are available to complete the required work up-front work necessary to develop explicit landscape level zones and objectives. If this can not be

done then there may be a need to revamp the RBC so there is less focus on resource value objectives.

Companion Document 2 Management of Clearcut Block Size and Distribution

This document commits SRM to work with MOF and MWLAP staff to prepare patch size objectives for areas under land planning initiatives.

Ensure staff and budget resources are available to meet this commitment or consider dropping this objective.

Alternatively drop this objective.

Companion Document 3 Response to Forest Health Problems

Should responses to forest health problems be specified in land use objectives? If this is not done this way then timber harvesting may take precedence over protection of other values.

Where other values are affected by forest health problems is there going to be a means put in place to ensure that lost values are captured elsewhere if possible e.g. if an Old growth area is salvaged logged will there be a means to recruit new old growth.

Land use strategies should include a strategy for dealing with forest health and catastrophic timber losses. These strategies would provide the District Manager with direction on making approvals where these types of events are encountered.

A feedback mechanism needs to be put into place to ensure that SRM is aware of incidents where resource values have been impacted so that objectives can be amended where required to ensure other values are properly considered and addressed

Companion Document 4 Development of Continuous Improvement Process

If we are going to monitor the effectiveness of forest practices legislation and regulation by the "manage by data " approach then there will be a need to ensure that required data is acquired on a timely basis and to an appropriate quality.

Ensure that sufficient staffing, funding, co-ordination and partners are available to make this effective.

Companion Document 6 Sustainable Forest Practices – Criteria and Indicators Comments

Since SRM is responsible for sustainability principles then shouldn't SRM be responsible for monitoring or at least co-ordinate monitoring of sustainability criteria and indicators. SRM seek to become the co-ordinating agency for monitoring sustainability criteria and indicators.

Companion Document 8 The Transition from the Forest Practices Code to a Results-based Regime

There is going to be a large workload associated with developing interim objectives for the Results Based Code. Especially since plans must be created by December 2002. Will SRM have sufficient budget and staffing to be the lead agency in terms of managing data required for implementation of the RBC?

SRM review the potential workload involved with establishing interim objectives and develops an action plan for developing and implementing objectives.

Alternatively decide which objectives can not be implemented in the interim and prioritize their completion. Also look to see if objectives can be dropped.

Companion Document 9 Evidentiary Base to Support a Resource Development Permit

The need for establishing interim objectives is again emphasized in this document. Staff and resources will be required to ensure interim objectives are in place.

The need for clear, spatially explicit and measurable land use zone and objectives is again highlighted in this document.

Should part of the process of developing land use zones and objectives involve defining the evidentiary package required to meet test 2?

In order to reduce the time licensees spend planning it may be worthwhile establishing proportional old growth targets prior to licensees initiating planning. In this regard licensees should be responsible for developing a plan.

What is SRM's role in providing support to the DM in applying test 2?

There needs to be some guidance from government on what is considered to be appropriate public consultation.

SRM provide direction regarding what the minimum evidentiary information that must be submitted for a specific resource value. This would ensure that the resource value is properly considered when the DM considers test 2 in his approval process for the RDP

General Comments

Will we have the resources to do the monitoring required to make an RBC work?

MSRM will play a crucial role in disseminating information needed for planning. There is currently difficulty in maintaining up-to-date information. The situation is likely to get worse when the responsibility for inventory is transferred to licensees because of the short time frame for the change. The transition period must be greater than April 1, 2003. If adequate time is not allowed for information collection, storage and distribution to be done properly, MSRM will end up providing grossly inadequate and outdated information back to licensees who will then use it to develop their plans and seek approvals.

Some values do not lend themselves well to results based descriptions (analogy of results based driving). Will rules be maintained indefinitely to ensure proper management of those values?

Government is increasingly vulnerable in terms of its ability to adequately monitor and enforce given projected downsizing.

How do Defined Forest Area Management plans integrated with the RBC?

How do Sustainable Forest Management Plans integrate into the FPC?

How does certification fit into this process?

If MSRM is responsible for developing sustainability principles shouldn't MSRM be responsible for co-ordinating reports on indicators of sustainable forest management and environmental sustainability.

There needs to be a stronger link between SRM Plans and how they are incorporated into the RBC. When new objectives are developed they should be developed to dovetail into the RBC. This would mean that the development of a goal, results and rules would have to be considered as part of the process.

SRM should be the lead agency in the development of all objectives as SRM has been given the role of balancing social, environmental and economic values.